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BRITISH MUSEUM
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NATURAL HISTORY

Bournemouth Natural Science Society

Proceedings

(1975 - 76)

VOLUME LX

PART 3

Bournemouth Natural Science Society

Introductory Note

The objects of the Society are declared by the second of its rules to be "the promotion of the study of Science in all its branches, and of Public Education by means of Lectures, Field Meetings, the Reading and Discussion of Papers, and in any way that the Council of the Society shall deem advisable".

The branches of Science at present represented are as follows:—**Archæology and History, Astronomy, Botany, Entomology, Geography, Geology, Ornithology, Photography, Physics and Chemistry, and Zoology.**

Frequent meetings are held comprising Lectures and Demonstrations on subjects of scientific interest, illustrated by lantern slides, films, the epidiascope, diagrams, specimens and experiments.

Field Meetings are held in various suitable places in the neighbourhood of the town, or sometimes Coach Tours are arranged to districts of scientific interest at a distance.

The management of the Society is vested in a Council, which is elected at the Annual General Meeting.

The Society possesses a Library available for the use of Members. Books may, under certain conditions, be borrowed by Members, and there is a Reading Room in which works of reference may be consulted. The Museum contains many valuable scientific collections and specimens. There is a well-equipped Dark Room for the use of Members interested in Photography.

Members are elected by the Council and pay an annual subscription of £5 for full membership. Life Subscription £50. Family Subscription (for members of a family living in the same house), is as follows: First Adult Member £5, additional Adult Members £3. Associate Membership Subscription is £1 and is restricted to young people up to 18 years of age or, if a bona-fide full time student, up to 21 years of age.

Country Membership applies only to those Ordinary Members who reside permanently **Outside** the boundaries of Bournemouth, Christchurch and Poole.

Subscriptions of Country Members are, First Adult Member £3, additional Adult Members, same family £2.

Special subscription for visitors to Bournemouth, 50p per month.

Members may enter into a Deed of Covenant to pay subscriptions by Banker's Order over the period of seven years. At present, the Society benefits by approximately 54p on each £1 subscribed in this way. Full particulars from the Hon. Treasurer on request.

A three-monthly programme, giving full details of all meetings is supplied to every Member and a Volume of Proceedings is published each year of which each Member receives a copy (additional members of a family living in the same house on application to the Secretary).

Further particulars and membership application forms may be obtained from the Honorary Deputy Secretary, Bournemouth Natural Science Society, 39 Christchurch Road, Bournemouth.

BRITISH MUSEUM
GENERAL
29 MAR 1977
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NATURAL HISTORY

PROCEEDINGS
of the
Bournemouth Natural Science Society

VOLUME LX
PART 3

1975 - 76

Edited by
MISS V. H. SMITH

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A set of back numbers may be consulted in the Society's Reference Library or individual Volumes borrowed from the Lending Library on application to the Librarian.

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Bournemouth Natural Science Society

OFFICERS AND COUNCIL FOR 1976–77

N.B.—University degrees and other qualifications are inserted only at the first mention of names.

President :

F. Oldham, J.P., M.A., B.SC., F.INST.P.

Vice-Presidents :

Sq. Ldr. J. L. C. Banks
T. M. Bell, B.A. M.B., B.CH.
Miss K. Milner Bennetts, F.Z.S.
S. C. S. Brown, F.D.S., R.C.S., L.D.S.
E. Chambers, F.L.S.
Brig. A. B. D. Edwards, C.B.E., M.C.
Miss F. M. Exton, B.A.
Mrs. A. K. Hunt, B.SC.
Miss D. M. Lowther, B.SC.
Miss U. M. Ogle
Miss M. A. M. Penrose, B.SC.
G. Teasdill, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.
D. A. Wray, PH.D., M.SC., F.G.S.

Chairman of Council : Miss K. M. Bennetts
Deputy Chairman : G. Teasdill

Council :

The Vice-Presidents, Officers, Chairmen of Sections and Chairmen of Committees (*all ex officio*)

Mrs. M. Arnold
K. L. Anderson, F.R.G.S., C.ENG., F.I.MECH.E., F.N.Z.I.E.
R. C. Buckland
Dr. T. H. Blakeley
W. H. Lee
R. G. Lees
W. J. Middleton
F. Oldham
Mrs. B. Taylor
W. C. Thomas
Mrs. G. M. Tmomas
Cdr. G. W. Watson
Miss E. M. Whitaker
F. W. Wilson, F.C.I.S.

Chairmen of Sections :

Archæology and History : J. Robinson, B.SC.
Astronomy : G. Nash, M.A., F.R.A.S.
Botany : Miss K. M. Rushton, M.B., CH.B., M.SC.
Geography : Miss F. M. Exton
Geology : Mrs. B. Taylor
Photography : Miss U. M. Ogle
Physics and Chemistry : T. A. Crawshaw, F.INST.M.C.
Zoology — Entomology : Sq. Ldr. J. L. C. Banks
Mammalia : Miss K. M. Bennetts
Ornithology : Mrs. L. M. Maddox

Hon. Secretary : Mrs. V. A. Heales
Hon. Deputy Secretary :
Hon. Assistant Secretary : Mrs. B. E. Hooton-Smith
Hon. Cine Programme Secretary : Mrs. G. Draper
Hon. Press Officer : Mrs. A. K. Hunt
Hon. Welcoming Officer : W. H. Lee
Hon. Treasurer :
Hon. Assistant Treasurer : Mrs. I. Towndrow
Hon. Curator : W. A. Bray
Hon. Editor : Miss V. H. Smith
Hon. Librarian : Miss E. Crichton Todd
Hon. Assistant Librarian : Miss G. Hayball
Hon. Slides Custodian : J. C. Mitton, A.C.A.
Hon. Projectionists : *Cine—* ; *Still*—J. C. Mitton

Bankers :

National Westminster Bank Ltd., The Square, Bournemouth

Trustees :

Miss Dorothy Mary Lowther
Miss K. Milner Bennetts
John Charles Mitton
William H. Lee

Hon Auditors :

J. G. Parkinson
H. P. Wheeler

COMMITTEES, 1976–77

Finance and General Purposes :

Chairman : Miss K. M. Bennetts

President, Deputy Chairman, Hon. Treasurer, Hon. Secretary, Chairman of Chairmen of Sections Committee, Hon. Deputy Secretary, Hon. Assistant Treasurer *(all ex Officio)*

R. C. Buckland, Mrs. A. K. Hunt, Cdr. G. W. Watson, F. W. Wilson

Museum :

Chairman : W. A. Bray

Chairmen of Sections (*ex officio*

G. Teasdill

Library :

Chairman : W. J. Middleton

Miss E. Crichton Todd *(Librarian)*, Miss C. Hayball *(Assistant Librarian)*, Mrs. B. E. Hooton-Smith, Miss C. F. Noll, F. Oldham, Miss L. M. Rowe

House :

Chairman : K. L. Anderson

Mrs. W. Chome, W. H. Lee, Mrs. B.Taylor

Garden :

Chairman : Mrs. W. Chome

Miss R. W. Brown, Miss D. Clamp, Miss H. I. Payne, Miss E. M. Whitaker

Tea :

Chairman : Mrs. M. K. Parkinson

Miss I. K. Burroughs, Mrs. F. M. Crawshaw, Mrs. A. Cousins, Mrs. M. Laidlaw, Mrs. M. Mitton, Miss W. A. Saunders, Mrs. H. I. Taylor, Mrs. L. Wheeler, Miss E. M. Whitaker

Entertainment :

Chairman : Miss M. Allen

Miss D. Clamp, Miss D. M. Collier, T. A. Crawshaw, Mrs. A. Day, Mrs. C. D. M. Goldie, A. L. Ledger, J. Robinson, Mrs. E. Buckland

Visiting :

Chairman : Mrs. E. Buckland

Mrs. W. Chome, Mrs. V. Follett, Miss F. A. Stiff, Miss E. M. Whitaker

Bournemouth Natural Science Society

List of Members

Revised to 31st October, 1976

* Honorary Member
v Vice-President
† Past President

w Gilbert White Fellowship
L Life Member
A Associate Member

The year of election is given before the name of each member
Unless otherwise stated all addresses are in Bournemouth

1974	Adlard, Mrs. L. B.	18 Seaward Avenue, BH6 3SH
1961	Aiers, Miss E. M.	Flat 1, 19 McKinley Road, BH4 8AG
1975	Ajou, I. A.	24 Lansdowne Road
1975	LAlderton, F. A.	20 Ravenscourt Road
1963	*Allen, Miss M.	174 Holdenhurst Road, BH8 8AS
1971	Allin, Mrs. J. M.	14 Oakwood Road, Highcliffe
1968	Allington, Mrs. I.	29 Colemere Gardens, Highcliffe
1960	Alsford, C.	20 Church Road, Ferndown, BH22 9EU
1960	Alsford, Mrs. J. R.	,, ,,
1955	Ambler, Mrs. A.	13 Elgin Road, BH4 9NL
1968	Ames, W. J. C.	3 Rothesay Road, BH4 9NH
1968	Ames, Mrs. D. A.	,, ,,
1971	Anderson, K. L. ,F.R.G.., C.ENG., F.I.MECH.E.	21 Marchwood, 8 Manor Road
1970	Andrews, Mrs. A.	41 James Road, Branksome, BH12 1EA
1965	Andrews, Miss K. E.	49 Christchurch Road, BH1 3PA
1970	Angus-Hay, Mrs. L. E.	9 Windermere Road, BH3 7LF
1967	LArnold, Mrs. M.	1198 Christchurch Road, BH7 6DY
1975	Ash, Miss C. C.	2 Pendennis, 7 Derby Road
1975	Athill, Col. G.J., M.B.E., F.L.W.S.P.	5 Cresta Gardens, Ferndown, BH22 8LY
1975	Athill, Mrs. J. I.	,, ,,
1972	Atley, Mrs. C. E.	6 Solent Road, BH6 4BP
1974	Ayles, Mrs. N.	6 Slavanka Court, 44 Belle Vue Road
1974	Ayton, D. J.	201 Kinson Road, BH10 5HB

1962	Balfour-Browne, Miss E. F.	Acorn Cottage, Station Road, Verwood
1975	Ball, Mrs. B. E.	5a Aylesbury Road
1976	Ballard, E.	4 Wychwood Grange, 50 Braidley Road
1966	Band, Mrs. M., M.A.	5 Boscombe Cliff Road, BH5 1JL
1970	ABand, Miss E.	,, ,,
1971	Band, Mrs. S. G.	2 Lombard Avenue, BH6 3LY
1967	†vBanks, Sqd. Ldr. J. L. C.	Kingston Dene Walk, Ferndown
1974	Barbirolli, Mrs. M.	2 Chislehurst, Grosvenor Road, BH4 8BH
1971	LBartram, T., F.N.I.M.R., F.R.S.H., F.H.A.	6 Browning Avenue, BH5 1NN
1974	Beale, J. M., M.A.	71 Lake Drive, Poole, BH15 4LR
1974	Beale, Mrs. M. J.	,, ,,
1976	Beale, Mrs. M. L.	25 Darby's Lane, Poole
1972	Beckwith, W. E.	8 Cranleigh Gardens, BH6 5LE
1971	Beckwith, Mrs. I. A.	,, ,,
1974	Bell, Miss D. H.	19 Gainsborough Road, BH7 7BD
1944*	†vBell, T. M., B.A., M.B., B.CH.	5a Stourwood Avenue, BH6 3PN
1976A	Bell, F. G. T.	4 Corhampton Road
1963	†vBennetts, Miss K. M., F.Z.S.	29 Belle Vue Gardens, Belle Vue Road

1974	Bennett, W. H. D.	3b Elgin Road, BH4 9NL
1974	Bennett, Mrs. M. E.	,, ,,
1947	Berrill, Miss M. E.	41a Cavendish Road, BH1 1RA
1967	Bettell, Miss I. M.	4 Curzon Court, 11 Portarlington Road
1972	Bevans, Mrs. E.	7 Heathwood Road, BH9 2JX
1966	Bidder, E. R.	Durley Dean Hotel, West Cliff Road
1972	Birkinshaw, D.	30 Lowther Road, BH8 8NG
1976	Blackwell, Mrs. V. L.	D10, Stour Court, Princess Rd., Branksome
1975	Blakeley, Dr. T. H., B.SC., PH.D.	Cootamundra Shappen Hill Lane, Burley
1975	Blakeley, Mrs. W.	,, ,,
1951	LBlandford, Mrs. R. I.	B18 Elizabeth Court, Grove Road
1973	Blanksby, Mrs. A. M.	12 Arnewood Court, West Cliff Road
1975	Blick, L. W., C.ENG., M.I.E.E., M.I.E.R.E.	28a Derby Road
1970	Blick, Mrs. O. M.	,, ,,
1971	Bliss, J. W.	9 Oak Close, West Parley, BH22 8UA
1971	Bliss, Miss I.	,, ,,
1975	Bloomfield, C. J.	42 Verney Road
1975	Bloomfield, Mrs. B. J.	,, ,,
1964	Blower, Miss M.	32 Selkirk Close, Merley, Wimborne
1975	Blum, J. E.	5 Coventry Court, Northlands Drive, Worthy Road, Winchester
1976	Bolt, Miss E.	15 Comley Road
1967	Bowers, Mrs. M. P.	2 Wootton Court, Wootton Mount
1969	Bray, W. A.	234 Ringwood Road, Leigh Common, Wimborne, BH21 2DE
1969	Bray, Mrs. E. M. F.	,, ,,
1975	Brazell, Mrs. M.	Surrey Lodge, 16 St. Winifreds Road
1968	Brazier, Miss M. A.	4 Cedar Avenue, BH10 7EF
1971	Broadway, Mrs. V. M.	A23 San Remo Towers, Sea Road
1970	Brooks, J. L.	7 Milton Road, Wimborne, BH21 1NY
1970	LBrooks, Miss M. M., PH.C., M.P.S., F.R.S.H., F.R.E.S.	,, ,,
1966	Brown, Miss R. W., B.A.	11 St. Winifreds Court, 3 St. Winifreds Road, BH2 6NY
1967	†vBrown, S. C. S., F.D.S., R.C.S., L.D.S.	158 Harewood Avenue, BH7 7BG
1962	Brown, Miss V. C.	9 Laverstock, Boscombe Cliff Road
1973	Buckland, R. C., A.I.B.C.M.	127 Overcliff Drive, Southbourne
1969	Buckland, Mrs. E.	,, ,,
1971	Burges, L. H.	7 Wolverley Court, 31 Marlborough Road
1971	Burges, Mrs. E.	,, ,,
1964	Burroughs, Miss I. K.	2 Dearmer House, 11 St. Albans Avenue
1930	Bury, Miss G. J.	Little Mayfield, 10 Rossley Close, Christchurch
1973	Butcher, Mrs. C. E.	10 Victoria Gardens, Fordingbridge

1975	Cable, G.	179 Burlington Hotel, Owls Road
1967	Cady, Mrs. L.	108 Alexandra Road, Poole, BH14 9EP
1964	Cartwright, Miss D. E., M.B.E.	31 Wistaria House, Redhill Drive
1974	Capper, Dr. K. R., PH.D., F.P.S.	10 Kenilworth Court, Western Road, Poole
1975	Capper, Mrs. J., M.P.S.	,, ,,
1975	Catchpole, M. R.	21 Langton Road, BH7 6HS
1943	*†vChambers, E., F.L.S.	49 St. Catherines Road, BH6 4AQ
1944(1950)	Chambers, Mrs. E.	,, ,,
1974	Channon, W. V. K.	36 Studland Road, BH4 8JA
1974	Channon, Mrs. P. G.	,, ,,
1959	Charter, Mrs. E. E.	Flat 3, 1 Cavendish Place, BH1 1RQ
1951	Chomé, E. E. P.	3 Sandykeld, 26 Manor Road
1942	*Chomé, Mrs. W.	,, ,,

1968	Clamp, Miss D.	6 Hengistbury Road, Barton-on-Sea
1974	LClapton, Miss D. E.	11 Gardens Court, 45 Surrey Road
1976	Clarke, Mrs. D. E.	23 Victoria Gardens, Fordingbridge
1945	Clarke, Mrs. M.	4 Gardens Court, 57 Parkstone Road, Poole
1963	Clode, J. C.	15 Malubres Road, Chandlers Ford
1973	Clode, Mrs. V. M.	,, ,,
1958	*Cocke, M. H.	St. Ives House, Horton Road, St. Ives, Ringwood
1975	Cole, Mrs. J.	34 Little Forest Road
1972	Collier, Miss D.	12 Queenswood Avenue, Queens Park
1971	Collinson, Miss M.	14 New Road, BH10 7DT
1976	Combes, R. W. H.	22 Springfield Road, Parkstone
1976	Combes, Mrs. M., B.A.	,, ,,
1975	Constant, Mrs. A.	59 De Lisle Road, BH3 7NG
1970	Cooke, F. W.	14 Meadow Close, Ferndown, BH22 8RN
1941	LCooper, Mrs. E. M.	B18 Elizabeth Court, Grove Road
1975	Cooper, T.	20 Belfield Road, BH6 4JB
1975	Cooper, Mrs. K. M.	,, ,,
1976	Copp, F. A., O.B.E.	84 Brackendale Road
1976	Copp, Mrs. V. E.	,, ,,
1971	Cotton, Dr. W. J., B.A., B.M., B.CH.	37 Cedar Manor, 19/21 Poole Road, Poole
1971	Cotton, Mrs. K.	,, ,,
1971	Coulton, Miss L. M.	39 Chigwell Road, BH8 9HW
1972	Cousins, Mrs. A.	51a Newstead Road, BH6 3HL
1970	Cowell, H. F.	62 Hurn Way, Christchurch, BH23 2DP
1970	Cowell, Mrs. E. J.	,, ,,
1948	*Cox, Mrs. E. D.	248 Castle Lane, BH8 9TT
1956	LCox, Miss M. G. E.	4 The Maitlands, 8 Portarlington Road
1974	Cox, Mrs. T. J.	12 Geneva Avenue, BH6 3NB
1973	Crane, Mrs. R. C.	8 Avon View Road, Burton
1971	Crawford, Miss E. M.	Dormy House, 11 Central Drive
1973	Crawshaw, T. A., F.M.INST.M.C.	D4 Exbourne Manor, 37 Christchurch Rd.
1972	Crawshaw, Mrs. F. M.	,, ,,
1971	Crouchley, A. E., C.B.E., M.A., B.COMM.	21a Woodland Avenue, BH5 2DJ
1975	Curtis, C. J., A.C.I.S.	114 Cutlers Place, Wimborne
1975	Curtis, Mrs. B.	,, ,,

1975	Dain, F.	111 Bader Road S., Canford Heath, Poole
1975	Dain, Mrs. D.	,, ,,
1975	Davies, Mrs. B.	18A Aylesbury Road
1976	Davis, Mrs. B.	5 Athelney Court, 24 Grove Road
1972	Davis, Mrs. D. D.	5 Marks Road, BH9 2XQ
1972	Davis, R. T.	,, ,,
1964	Day, Mrs. A.	15 Bosley Way, Christchurch, BH23 2HF
1967	Deacon, Miss M. G. K.	42 Belmont Road, Poole, BH14 0DB
1973	Dear, Mrs. M. H., B.A.	12 Dene Walk, Ferndown, BH22 8PQ
1975	Denison, Mrs. N.	3 Braidley Mansions, Braidley Road
1975	Dickinson, Mrs. H. M.	79 Evelyn Road
1962	Dickson, A. A.	23 Sandy Lane, Upton, Poole
1970	Dodds, J. J., B.A.	B4 Halebrose Mansions, Belle Vue Road
1972	Dolamore, Mrs. M.	15 Dene Walk, Ferndown
1973	Donnelly, J. F.	3 Bruce Hayes Close, Highcliffe
1973	Donnelly, Mrs. W.	,, ,,
1976	Donnelly, Mrs. V. G.	E4 Pine Grange, Bath Road
1970	Draper, G. S.	44 Brackendale Road, BH8 9JA
1970	Draper, Mrs. O. G.	,, ,,
1961	Draper, Mrs. G.	45 St. Osmonds Road, Poole
1953	Dudley, D. J.	17 Widdicombe Avenue, Poole
1955	Dudley, Mrs. I.	,, ,,

1972	Dunfee, Miss E. G.	5 Barton Drive, Barton-on-Sea
1975	Dunstan, Miss E. M.	21b Alumhurst Road
1975	Dunwoodie, Mrs. J.	70 Alumhurst Road
1974	Durrant, J. A.	4 Twynham Road, BH6 4AF
1969	Dyke, Mrs. R.	9 Nairn Court, Nairn Road, BH3 7BE

1967	Earl, Mrs. J. C.	10 Merrifield Drive, Broadstone
1974	Easterbrook, L.	4 The Pines, 38 The Avenue, Poole
1974	Easterbrook, Mrs. F. P.	,, ,,
1953	*Eaton, Mrs. V. W.	16 Barclay Mansions, St. Valerie Road
1965	*Edwards, Brig. A. B. D., C.B.E., M.C.	234 Burlington Hotel, BH5 1AD
1969	Edwards, Miss G. M.	119 Craigmoor Avenue, BH8 9LT
1967	Eisner-Heublum, Dr. A., PH.D.	5 Pandora Road, London, N.W.6.
1963	Elliott, Mrs. D.	85 South Road, BH1 4PB
1976	Errington, R.	39 Keith Road
1976	Erskine, S. L. W., M.D., D.PH.	16 Oakwood Road, Christchurch
1971	Evans, J. T.	5 Leven Avenue, BH4 9LH
1976	Evans, R. C.	96 Church Road, Ferndown
1955	*†vExton, Miss F. M., B.A.	4 Worthington Crescent, Poole
1960(1976)	Exton, Miss J. M.	,, ,,

1976	Farrell, Miss C.	7 Fortescue Road
1953	LFarwell, Mrs. S. M. A.	Latch Farm, Fairmile, Christchurch
1965	Fildes, Mrs. E. M.	45 Wickfield Avenue, Christchurch
1976	Fisher, G.	36 Burnham Drive
1976	Fisher, Mrs. N.	,, ,,
1966	Fitch, Miss E. N.	Queens Hotel, Meyrick Road
1965	Foley, Miss E.	27 The Chantrey, Madeira Road
1973	Follett, J. C.	10a Stevenson Crescent, Poole
1939(1954)	Follett, Mrs. V.	,, ,,
1975	Ford, Mrs. J.	43 Belle Vue Gardens, Belle Vue Road
1962	Fox, Mrs. V.	1 Clifton Court, Heathcote Road, BH5 1EY
1970	French, Mrs. H. M.	1 Parkview, 16 Braidley Road

1975	Gardiner, J. A.	49 St. Catherines Road, BH6 4AQ
1975	Gemmell, J.	16 Alexandra Road, BH6 5JA
1975	Gemmell, Mrs. D. J.	,, ,,
1974	George, W. L.	8 Glendale Close, Wimborne
1974	George, Mrs. J.	,, ,,
1972	Gillett, Miss M. M. A.	16 Talbot Avenue, BH3 7HX
1975	Gillespie-Smith, R. D.	23 Links Road, Poole, BH14 9QR
1963	Goldie, Mrs. C. D. M.	20 Balcombe Road, Poole
1949	Goodhart, Mrs. M. S.	West Thorpe, Lymington
1953	Gray, Miss E.	44 Edmondsham House, Terrace Road
1967	Green, Mrs. E. I., B.A.	27 Southlea Avenue, BH6 3AD
1967	Griffiths, H. D., M.A.	C23 San Remo Towers, Sea Road, BH5 1JT
1973	Griffiths, Mrs. R. A.	,, ,,
1975	Gross, M. St. G.	2 Exeter Grange, Exeter Park Road
1975	Gross, Mrs. K. A.	,, ,,
1975	Grossert, A.	4 Mainstone, Romsey, SO5 0BA
1973	Gunter, Mrs. R. B.	13 Annerley Road, BH1 3PG

1951	Haines, Miss G. M.	Appleslade, Linwood, Ringwood
1971	Hall, J. O.	36 Keith Road, BH3 7DU
1971	Hall. Mrs. D. M.	,, ,,

1976	Hall, K.	214a Shelbourne Road
1975	Hallam, Mrs. M.	25 Darby's Lane, Poole
1972	Hanna, H. J. A.	6 Cliffe Road, Barton-on-Sea
1971	Hanna, Mrs. K. A., M.A.	,, ,,
1972	Harding, R.	3 Porchester Place, BH8 8JS
1974	Harding, R. E.	39 Branksea Avenue, Poole
1974	Harding, Mrs. M. I.	,, ,,
1960(1975)	Hardy, Miss L. H.	Hotel Bristowe, Grange Road, BH6 3NY
1976	Hardy, W.	1 Gorsecliff Court, 5 Boscombe Spa Road
1976	Hardy, Mrs. E.	,, ,,
1976	Harris, Mrs. H. F. M.	56 Southcote Road
1961	Harvey, Mrs. F. E., M.B., CH.B.	C21 San Remo Towers, Sea Road, BH5 1JT
1964	Hatton, R. H. S., M.A.	Pine Cottage, Lower Rowe, Holt
1951	Hawker, Mrs. E.	64 Alumhurst Road, BH4 8EU
1976	Hawley, Mrs. M.	13 Sandykeld, 26 Manor Road
1973	Hayball, Miss G.	67 Walcott Avenue, Christchurch
1951	Hayman, Miss M. S.	39 Queens Park South Drive, BH8 9BJ
1969	Hayter, Miss E.	38 Edgehill Road, BH9 2PQ
1971	Hayward, Mrs. E.	54 Lansdowne Road, BH1 1RS
1970	Heales, H. C., J.P., F.B.S.	23 Albemarle Road, BH3 7LZ
1970	Heales, Mrs. V. A.	,, ,,
1972	LHealey, Mrs. R.	5 Leven Avenue, BH4 9LH
1971	Heaton, Mrs. M. I.	8 Mayfair, 74 Westcliff Road, BH4 8BG
1975	Heath, G. W.	3 Wyndham Road, Parkstone
1975	Heath, Mrs. M. R.	,, ,,
1954	Hermon, J. A.	43 Stourcliffe Avenue, BH6 3PU
1975	Hills, Miss I. D.	4 Magnolia House, Redhill Drive
1973	Hilton, J.	47 Belle Vue Gardens, Belle Vue Road
1973	Hilton, Miss M. L., B.SC., PH.D.	,, ,,
1962	*Hipperson, Miss M.	69 Headswell Avenue, BH10 6JZ
1974	Hoar, Miss K.	159 Fairmile Road, Christchurch
1974	Hobbs, Miss A. A.	25 Ensbury Avenue, BH10 4HF
1975	Hogan, M. J.	14 Easter Court, St. Johns Road
1960	*Holbrook, H. S., B.SC., C.ENG., F.I.E.E.	17 Ken Road, BH6 3ET
1972	Holder, F. H.	105 Northfield Road, Ringwood
1972	Holder, Mrs. A. R.	,, ,,
1974	Holmes, Mrs. H. N.	27 William Road, BH7 7BB
1961	LHooton-Smith, Mrs. B. E.	4 Iddlesleigh Road, BH3 7JR
1975	Hughes, Mrs. P.	311 Bournemouth Road, Charlton Marshall, Blandford
1957	Hunt, W. H.	Flat 1, 5 Alton Road, Poole
1954	*†VLHunt, Mrs. A. K. B.SC.	,, ,,

1969	Jackson, Mrs. J. C.	31 Western Road, Poole
1975	Jardine, Rev. D. E. C., M.A., DIP.THEOL.	St. Saviours Vicarage, Colemore Road
1975	Jardine, Mrs. E. V. S., M.A.	,, ,,
1972	Jarrold, Miss C. W.	4 Stanley Court, Brunstead Road, Poole
1945	Jenkins, Miss P.	School Cottage, Hinton, Christchurch
1976	Jenkins, Miss C.	18 William Road
1976	Jordan, L. E.	18 Braidley Road
1976	Jordan, Mrs. V. M.	,, ,,

1974	Kefford, Miss J. M.	40 James Road, Poole, BH12 1EA
1975	Kemp, J. A., M.P.S.	55 St. Clements Road, BH1 4DX
1970	Kent, H. M., B.SC.	62 Canberra Road, Christchurch
1970	Kent, Mrs. M.	,, ,,
1968	Kernot, Miss F. L.	5 Queens Park Road, BH8 9BP

1965	Killick, Mrs. K. D.	4 Highlands Road, New Milton
1974	Knight, G.	40 Swanmore Road, BH7 6RD
1974	Knight, Mrs. V.	,, ,,
1974	Knight, N.	,, ,,

1968	Laidlaw, W.	14a Newstead Road, BH6 3HJ
1968	Laidlaw, Mrs. M.	,, ,,
1973	Lanceley, R. G.	205 Ashley Road, BH1 4NL
1972	Lanigan, G. W.	5 Arlington Court, Blecton Lane, Barton-on-Sea
1972	Lanigan, Mrs, D. L.	,, ,,
1970	Ledger, A. L.	7 Albemarle Road, BH3 7LZ
1966	Lee, W. H.	18 Ravenshall, West Cliff Road, BH4 8AT
1967	Lee, Mrs. L. B.	,, ,,
1975	Lees, R. G.	28 Thornbury Road, BH6 4HS
1966	Legge, Mrs. I.	E13 San Remo Towers, Sea Road, BH5 1JY
1973	Lemmon, Mrs. K. M.	22 Marchwood, 8 Manor Road, BH1 3EY
1976	Lilly, G. W.	78 St. Lukes Road
1970	Lilly, Mrs. P.	,, ,,
1975	Limburn, S. W., B.SC.	34 East Lake Avenue, Poole
1975	Lister, Dr. M., M.SC., PH.D.	6 Katterns Close, Christchurch
1976	Little, Miss M. E.	56 Westbourne Park Road
1975	Loader, S. D.	31 Arcadia Road, Christchurch
1970	Loader, Mrs. M.	,, ,,
1976	Lockyer, Mrs. M. I. A.	43 St. Osmunds Road, Poole
1934	*†vLowther, Miss D. M., B.SC.	15 Mayfield Avenue, Poole
1972	Lunn, H. B., F.R.I.C.	39 Wellington Avenue, Highcliffe, Christchurch
1972	Lunn, Mrs. M. J.	,, ,,

1969	McAlpine, Miss G., B.A.	10 Western Avenue, Barton-on-Sea
1956	McClay, H., M.S.M., A.C.I.I.	6 Fountain Court, Durley Gardens
1958	McClay, Mrs. D. G.	,, ,,
1974	McMullin, Mrs. E. G.	113 Alumhurst Road, BH4 8HS
1970	McNish, Mrs. B.	61 Irving Road, BH6 5BH
1973	Maddox, C. B. M.	31 Egerton Road, BH8 9AY
1956	Maddox, Mrs. L. M.	,, ,,
1970	Mansfield, Mrs. F. M.	,, ,,
1946	Marshall, Miss D.	76 Palace View, Bromley, Kent
1967	Martin, F. B., F.C.I.I.	C25 San Remo Towers, Sea Road, BH5 1JT
1970	Masters, Capt. L. H. J.	24 Grafton Gardens, Pennington, Lymington
1970	Masters, Mrs. B. J.	,, ,,
1964	LMasters, Miss K. F.	10 West Way Close, West Way, BH9 3DR
1975	Martin, Miss H. F.	16 Sandbourne Road
1974	Mayhew, Mrs. M.	D6 Kings Walk, 19a Knyveton Road
1975	Mearns, N. A.	8 Austin Close, BH1 4RP
1975	Mearns, Mrs. E. A.	,, ,,
1976	Merchant, Miss J. M.	4 Marlborough Court, Marlborough Road
1973	Merry, D. F.	10 Victoria Gardens, Fordingbridge
1973	Merry, Mrs. H. E.	,, ,,
1975	Michael, T. N.	13 Herberton Road
1975	Michael, Mrs. M.	,, ,,
1956	Middlemast, A. H.	86 Hengistbury Road, BH6 4DJ
1971	Middleton, Miss M.	24 Cudlow Avenue, Rustington, Sussex
1964	Middleton, W. J.	74 Compton Avenue, Poole
1976	Mills, W. G. Q., M.B., B.CH., F.R.C.S.	66 Blake Hill Crescent, Poole
1959	*Mitton, J. C.	3 Gainsborough Road, BH7 7BD
1970	Mitton, Mrs. M.	,, ,,

1972	Moore, W. H.	13 Eldon Road, BH9 2RT
1973	Moore, Mrs. L.	,, ,,
1973	Morris, Mrs. E. M.	A5 St. Catherines Court, Christchurch Road
1973	Morris, T. E.	Sandpit, Frogham Hill, Fordingbridge
1973	Morris, Mrs. J. F.	,, ,,
1975	Morris, S. R.	19 Albert Road, Ferndown, Wimborne
1975	Mulcaster, Mrs. A.	21 Avon House, 16 West Cliff Road
1975	Munslow, Mrs. B. J.	10 Belle Vue Road.
1965	Murch, Mrs. O. E.	4 Highlands Road, New Milton

1973	Nash, G., M.A., F.R.A.S.	29 St. Johns Road, Poole
1974	Nicklen, E. W.	77 Holdenhurst Avenue, BH7 6RB
1967	Nicklen, Mrs. L. V.	,, ,,
1968	Noll, Miss C. F.	2 Pinecliff Avenue, BH6 3PZ
1974	Norton, Mrs. B. M.	15 Dewlands Park, West Close, Verwood

1957	Odell, Mrs. G. B.	4 Barclay Mansions, St. Valerie Road
1970	Offen, E. C.	4 Ranelagh Road, Highcliffe, Christchurch
1970	Offen, Mrs. M. J.	,, ,,
1950	†vOgle, Miss U. M.	2 Frankland Crescent, Poole
1971	Oldham, F., J.P., M.A., B.SC., F.INST.P.	19 Dingle Road, BH5 2DP
1975	O'Neill, Miss G. E.	15 The Chantry, Madeira Road
1975	Ottley, Miss M. C.	7 Mount Heatherbank, Richmond Gardens
1972	Ottley, P. W., C.ENG., M.I.E.E.	5 Webbs Close, Ashley Heath, Ringwood

1968	Padwick, Mrs. M. D.	8 Arlington House, Clarendon Road
1970	Parish, D.	5 Venator Place, Munster Park, Wimborne
1970	Parish, Mrs. F. M.	,, ,,
1969	LParkinson, J. G.	45 Belle Vue Road, BH6 3DF
1969	LParkinson, Mrs. M. K.	,, ,,
1968	Parsons, Miss M. W.	3 St. Margarets, St. Valerie Road
1974	Patrick, Mrs. I. G. M.	2 Avoncliffe Road, BH6 3NR
1971	Pawson, Miss K. M.	39 Queen Mary Avenue, BH9 1TT
1963	Payne, Miss H. I.	83 St. Lukes Road, BH3 7LS
1973	Payne, Mrs. M. R.	1789 Wimborne Road, BH11 9AX
1970	Peake, E. C., F.Z.S.	582 Ashley Road, Poole
1916	*LPenrose, Miss F.	Little Picket, Hightown, Ringwood
1916	*†vLPenrose, Miss M., B.SC.	,, ,,
1948	Perceval, Mrs. W.	7 Benellen Avenue, BH4 9LU
1963	Perry, W. F., B.SC.	117 Portland Road, BH9 1NG
1953	*Pickering, V. T.	Francesca, Hightown, Ringwood
1953	Pickering, Mrs. C. G.	,, ,,
1975	Piggott, Miss G. M.	2B Cudnell Avenue
1966	Poole, Mrs. I.	23 Spur Hill Avenue, Poole
1975	Poucher, Miss F.	Eaton Court, Madeira Road
1971	Price, Miss E.	9 Windemere Road, BH3 7LF
1946(1967)	Prideaux, Miss C.	Upmoor, 28 Ravine Road, Poole
1973	Puckett, Mrs. M.	47 Somerley Road, BH9 1EN
1974	Purcell, W. J., M.B.E., CH.ENG.	2 Overbury Manor, 73 Branksome Wood Road, BH12 1HS
1967	Purdy, Mrs. K. M.	158 York Road, Broadstone
1976	Purnell, Miss E. J.	70 Belle Vue Gardens, Bell Vue Road

1974	Ramsden, F.	43 Coy Pond Road, Poole
1974	Ramsden, Mrs. E. M.	,, ,,
1974	Randall, K. S.	8/7 Portarlington Road
1976	Ratcliffe, Miss E.	1 Francis Court, 130 Richmond Park Road

1975	Ratcliffe, G. L., F.C.A.	4 Woodland Avenue
1975	Ratcliffe, Mrs. M. N.	,, ,,
1951	LRead, Mrs. H. A.	15 Carbery Avenue, BH6 3LL
1976	Redman, Miss F. M.	19 Meyrick Court, St. Winifreds Road
1974	Roberts, Brig. W. P. T., C.B.E., M.B.I.M.	Trenithy, Blackwater Drive, Wimborne
1974	Roberts, Mrs. F.	,, ,,
1973	Roberts, Mrs. V. L. M.	7 Beaulieu Road, Christchurch
1949	Robertson, Mrs. M.	41 Christchurch Road, BH1 3NS
1969	Robinson, J., B.SC.	39 de Lisle Road, BH3 7NG
1970	Robinson, Mrs. K. E.	,, ,,
1964	Rose, Mrs. D., M.A.	Flat 43 Hinton Wood, 17 Grove Road
1967	Rosemond, S. J., F.I.L	c/o National Westminster Bank, 27 Old Christchurch Road
1963	LRossiter, Mrs. D. M.	5 Park Homer Road, Colehill, Wimborne
1970	Rowe, Miss L. M.	23 The Bluff, Headswell Crescent
1963	Rushton, Miss K. M., M.B., CH.B., M.SC.	20 Greenways, Highcliffe, Christchurch
1967	Russell-Cotes Art Gallery	East Cliff, Bournemouth
1975	Rust, Mrs. P.	95 Holdenhurst Avenue, BH7 6RB
1970	LRuston, J. R.	Flat 1, 3 Moorland Road, BH1 3ST

1975	LSaunders, Mrs. M. W.	2 Memorial Homes, Castle Lane
1954	Saunders, Miss W. A.	10 Duncliff Road, BH6 4LT
1976	Schroeder, Miss J. M.	3 Chislehurst, Grosvenor Road
1973	AScott, Miss G. E.	39 Christchurch Road, BH1 3NS
1970	Scott, S. A.	6 The Close, Charlton Marshall, Blandford
1970	Scott, Mrs. L. G.	,, ,,
1976	Scott-Davis, Miss M. W.	26 William Road
1975	Scott-Walker, J.	18 St. Anthonys, 23 Westcliff Road
1973	Scott-Walker, Mrs. N.	,, ,,
1976	Scutter, Mrs. L. M.	12 Oakwood Road, Highcliffe
1971	Seal, Mrs. J. A.	56 Lansdowne Road, BH1 1RS
1960	*Sephton, Mrs. N., M.B., CH.B.	1/4 Talbot Avenue, BH3 7HU
1951	Sewell, Mrs. I.	4 Maunderville Crescent, Christchurch
1976	Shaw, Mrs. M. G.	33 Oakwood Road, Highcliffe
1971	Sherrington, Miss D.	57 Gladstone Road West, BH1 4HZ
1968	Shewell, Capt. A. V.	E46 San Remo Towers, Sea Road, BH5 1JY
1971	Simmons, W. F.	166 Shelbourne Road, BH8 8RA
1971	Simmons, Mrs. G. L.	,, ,,
1976	Simmons, Miss I.	4 Hampshire House, 37 Cavendish Road
1976	Sims, D. W. D., B.SC.	5 Blenheim, 6 The Avenue, Poole
1976	Sims, Mrs. D.	,, ,,
1975	Smith, Miss B. J.	97 Cranleigh Road
1976	Smith, Miss C.	18 Maxwell Road
1976A	Smith, Miss S. P.	,, ,,
1970	Smith, G.	1 Beechwood Lodge, 24 Portarlington Road
1970	Smith, Mrs. G. M.	,, ,,
1974	Smith, J. E.	47 Brackendale Road
1973	Smith, Miss V. H.	15 Belle Vue Gardens, Belle Vue Road
1976	Sorton, Mrs. A. L. E., B.A.	5 Admirals Walk, Westcliff Road
1975	Souter, Miss E. E.	1A The Croft, Warren Edge Road
1971	Southworth, T. C., O.B.E., B.SC.	15 Chine Crescent Road, BH2 5LG
1971	Southworth, Mrs. N. K. G., M.A.	,, ,,
1976	Sparkes, G., M.I.E.E.	68 Clingan Road
1976	Sparkes, Mrs. M.	,, ,,
1969	Stephens, Mrs. G. B.	24 Cavendish Road, BH1 1RF
1976	Stevens, Mrs. M. E.	1/72 Porchester Road
1975	Stickland, G. F.	138 Mossley Avenue, Poole
1962	Stiff, Miss F. A.	A16 Twynham Court, Dean Park Road
1976	Stocker, Miss M., B.A.	21 Amberley Court, Bath Road
1973	Stone, Miss M. G., B.A.	134 Castlemain Avenue, BH6 5ER

1967	Strain, W. S., M.A.	65 Farm Lane North, Barton-on-Sea
1976	Sumner, Mrs. M. J.	55 Shorefield Way, Milford-on-Sea
1975	Sutherland, A., F.L.A.	College Library, Bournemouth, College of Technology, Lansdowne
1976	Sycamore, H.	4/21 Boscombe Overcliff Drive
1969	Sykes, Miss R. B.	4 Crescent Road, BH2 5SS
1955	Taylor, Mrs. B.	164 Belle Vue Road, BH6 3AH
1971	Taylor, Mrs. H. I.	70 Tuckton Road, BH6 3HT
1967	†vTeasdill, G., F.M.A., F.R.S.A., F.R.N.S., F.Z.S.	99 Carbery Avenue, BH6 3LP
1967	Teasdill, Mrs. N. A.	,, ,,
1965	Thomas, W. C.	Flat D, Laverstock, Boscombe Cliff Road
1965	Thomas, Mrs. G. M., M.A., B.LITT.	,, ,,
1964	Thorne, Mrs. M., B.A.	2 Chestnut Avenue, Uddens Cross, Wimborne
1976	Tinkler, B. N., F.Z.S.	40 Egdon Drive, Merley
1970	Tipper, Miss N.	6 St. Michaels Flats, Cambridge Road
1965	Todd, Miss E. C.	Flat A, Pendennis, 7 Derby Road, BH1 3PU
1976	Tompkins, R. J.	167 Richmond Park Road
1976	Tordoff, Mrs. C. B.	C5 St. Catherine's Court, 35 Christchurch Road
1975	Towndrow, Mrs. I.	18a Aylesbury Road
1973	LTrevor-White, J.	3/40 Tower Road, Poole
1976	Upson, A., F.S.C.A., M.R.I.N., M.B.C.S.	4 Wychwood Grange, 50 Braidley Road
1976	Upson, Mrs. O.	,, ,,
1976	Varley, Mrs. V. M.	6 Roslin Hall, Manor Road
1968	Vaughan, Miss J. M.	29 Barrie Road, BH9 2XE
1968	Wagstaff, Miss M. V. D.	38 Westfield Road, BH6 3AR
1967	Walker, Dr. G., M.B., CH.B., D.P.H., B.SC.	E16 San Remo Towers, Sea Road, BH5 1JY
1966	*Walker, H. G., LL.B.	Manor Farm, Wootton, New Milton
1971	Wall, Mrs. M. E.	25 Dulsie Road, BH3 7DY
1974	Wall, T. R.	17 St. Mary's Road, Ferndown
1961	Wallace, Miss J. B., B.SC.	10 St. Ives Park, Ringwood
1974	Walton, R. J.	6 Hampden Lane, BH6 5AH
1976	Wardle, B. T.	17 Brunstead Road, Branksome
1976	Wardle, Mrs. B. A.	,, ,,
1975	Warren, D. H. E.	145 Parkstone Avenue, Parkstone
1973	Warwick-Haller, S. W., M.A., LL.B.	Acres Down House, Minstead
1973	Warwick-Haller, Mrs. G. M. S.	,, ,,
1973	AWarwick-Haller, Miss S. J.	,, ,,
1976	Watkins, W.	12 Belle Vue Road
1976	Watson, Comm., G. W., C.ENG., M.I.(MECH).E., F.I.R.A.S.	4 Coppen Court, 14 Madeira Road
1976	Watson, Mrs. H. M.	,, ,,
1975	Watson, H.	4 Neville Court, Darby Road
1974	Watson, Mrs. V. L.	,, ,,
1972	Watson, W.	Cottonwood Hotel, Grove Road, BH1 3AP
1975	Webster, Miss S. C., B.ED.	Clare Lodge, 4 Foxholes Road
1972	West, A. L.	Castle Mount, St. Valerie Road, BH2 6PQ
1961	Weston, Miss S. A.	Flat 1, 19 McKinley Road, BH4 8AG

1972	Westrap, H. A.	14 Aldridge Road, BH10 5NN
1975	Wheat, P. I.	9 Marlborough Road, Poole
1970	LWheeler, H. P.	47 Belle Vue Road, BH6 3DD
1970	LWheeler, Mrs. L.	” ”
1924	*Whitaker, Miss E. M.	22 Somerset Road, BH7 6JH
1972	White, Mrs. E. G.	Westminster Hotel, Clifton Road
1963	White, Miss J.	23 Pinewood Road, Poole
1976	White, Miss R. M., A.L.A.	Windene, Manor Farm Road
1971	Wilkinson, Miss N. I.	10A Fortescue Road, BH3 7JU
1976	Williams, J. L.	5 Ravenscourt Road
1976	Williams, Mrs. H., B.A.	” ”
1970	Williams, R.	62 The Avenue, Oak Tree Farm, St. Leonards
1975	Williams, Mrs. J. A.	12 Beau Court, 17 Portarlington Road
1976	Willis, Miss J. C.	73 The Grove, Moordown
1972	Wilson, F. W., F.C.I.S.	9 Pascoe Close, Poole
1972	Wilson, Mrs. E. M.	” ”
1976	Winter, Mrs. A. R.	10 Lakeside Road, Branksome Park
1960	Withers, A. E., F.A.I.	E41 San Remo Towers, Sea Road, BH5 1JY
1960	Withers, Mrs. D. E.	” ”
1948	Wood, Miss E. B., B.SC.	4 New Park Road, BH6 5AB
1971	LWood, Mrs. D. L.	15 Warwick Court, 136 Richmond Park Road
1949	*†vWray, Dr. D. A., M.A., PH.D., F.G.S.	14 Grove Road, Barton-on-Sea
1975	Wrenn, G.	99 The Avenue, Moordown
1976	Wright, Mrs. A. K.	223 Broadway Lane, Throop
1973	Wright, Miss E. C.	49 Christchurch Road, BH1 3PA
1975	Wyatt, G. H., PH.D., B.SC.	10 Berwick Road, BH3 7BB
1967	Young, Mrs. G.	3 South Court, Milford-on-Sea
1958	*Yule, Mrs. M. P.	Little Orchard, Godshill, Fordingbridge

Obituaries

It is with deep regret that we have to announce that during the past year the following members have died (the figures in brackets is the year of joining the Society):—

J. F. R. Bowers (1972), A. H. French (1968), Miss D. M. Lewis (1961), J. H. O. Mansfield (1969), Mrs. M. Middlemast (1956), W. Moore (1957), Mrs. D. A. Oldham (1971), Mrs. C. Simpson (1963).

Presidential Address

A Subjective View of Physics in my Generation

with particular reference to the discoveries of Cambridge physicists

By F. Oldham

Mr. Chairman, ladies and gentlemen, may I first thank the Council and members of this Society for the honour of electing me President for this year, and for the kindness in word and deed I have received since I joined the Society six years ago. Some members will recall that owing to illness of the late Mrs. Bircumshaw who was chairman of the Physics and Chemistry section, I took over this responsibility and ex-officio became a member of the Council. I am conscious of the enthusiastic and devoted service of our principal officers, and the debt we owe them in maintaining the efficiency and beauty of our property and in addition their production of a varied and comprehensive programme of activities, while the friendship arising from membership has certainly enlivened the years of retirement of many of us here today.

INTRODUCTION

Praise God for the harvest of science and skill,
In plastics and fibres created at will,
In power from atoms, their secrets revealed —
Praise God for man's freedom to fashion the world.

Physics is the study of natural phenomena which helps us to understand how such things as electrical motors, refrigerators, wireless sets and the complicated instruments and machinery of every day life work. By careful observation of such phenomena as the motion of the planets the physicist has found that this motion conforms to a certain pattern or law. Hence there is a necessity for accurate measurement, experiment and observation. To simplify our understanding, mathematics is employed to arrive at and describe these laws, and so there are two kinds of physicist, the experimenter and the theoretician. In dealing with the developments of physics since the beginning of the century which covers my generation I shall consider first my training and the striking discoveries made by leading physicists in the period, then the applications to technology especially in the field of inventions, then the changes in teaching the subject and finally the vexed question of future trends.

I began the study of physics in 1915 at the local grammar school, and had the good fortune to be taught by a superb teacher. In those days it was usual to break down the subject into Mechanics, Electricity, Magnetism, Heat, Light, Sound, and Properties of Matter, while for examination purposes it was usual to take one grouping only such as Magnetism and Electricity. There was an excellent laboratory most of the apparatus in it being made by the teacher and at the end of the room tiered seats facing a splendid lecture bench for the teacher to demonstrate experiments. In electricity we used electrical cells such as the Leclanché cell still used in dry batteries, Daniell cell, Grove cell, and the Bunsen cell. The latter used Nitric acid which fumed and there was a small windlass arrangement to lower the plates into the apparatus and raise them out again. High tension was provided by Wimshurst machines, frictional electricity after the manner of Faraday's experiments being much in evidence. One of the highlights was to stand one of the boys on a stool with insulating glass legs, electrify him with the machine and then produce sparks from his nose, fingers as well as to make his hair stand on end. Experiments and measurements were precise and I still have my exercise book on the frontispiece of which were the sentences 'Knowledge is Power', 'Diligence commands Success'.

As I had to wait a couple of years to enter a University because of the demand from ex-service men at the end of World War I, I taught in elementary schools and did an evening course in physics at the local Technical College where the Head of Physics was Mr. Brooks, one of the most original scientists in the Midlands. He was a great experimenter in Electricity and Magnetism and had collaborated with Professor Poyser in writing the text book on the subject. What excited our admiration was his prototype apparatus for identifying the noble metal gold in sunken wrecks with bullion in them as in Londonderry harbour on Lough Foyle; the Admiralty commissioned him to undertake the work of identifying the gold prior to salvaging the treasure. I also recall his insistence on the use of graph paper a yard square for the easy recording of points on a graph while a metre rule was used particularly where the points were on a curve, to draw a smooth line with the aid of this bendable scale.

The serious study of the subject came when I entered the Science Faculty of King's College, Strand, London University. Here the roomy laboratory was named after Wheatstone the distinguished 19th Century scientist who did so much to make the development of the telegraph system so successful. This laboratory contained much of Wheatstone's apparatus, and also some made for King George III, the outstanding example being an orrery—a working model of the sun and planets. In 1924 a new physics professor arrived from Cambridge named Appleton, whose particular line of research was Wireless Telegraphy and his researches led to an understanding of the transmission of radio waves and was the prelude to direction finding, radar and modern radio communications. He was a Fellow of St. John's College, Cambridge and had trained at the Cavendish Laboratory under Sir J. J. Thomson, then principal Professor there and later Master of Trinity College. J. J. as he was known by his students had built up a world wide reputation for his discoveries of the part played by gaseous particles in gaseous discharges, e.g. electrons, ions and isotopes. He had a remarkable succession of brilliant physicists from the major universities from all over the world doing research under his guidance. Subsequently the majority of these researchers returned to their home country and carried on their lines of research to become as well known as their mentor. Appleton was no exception and he certainly fired the imagination of his Honours Degree students not only by his enthusiastic lecturing but his obvious delight in the advances of knowledge by his own line of research. To give just one example, it was in 1924 when the number of amateur radio experimenters was growing daily and their activities reported in *Wireless World.* The post office had decided the Government was only interested in long wave radio as exemplified in the 1500 metre station at Rugby since these waves could be transmitted to the greatest distances. To the astonishment of the P.O. pundits, the amateurs reported receiving clear speech signals from fellow amateurs in distant Australia mainly about sunrise and sunset, using their short wave transmitters which the P.O. had dismissed as of no use to them. Appleton sort an explanation in a parallel effect in sound waves in the Whispering Gallery of St. Paul's Cathedral, where if one whispers along the surface of the gallery the words can be distinctly heard on the other side of the gallery if the ear is placed near the surface. The sound waves experience glancing reflection. In the wireless case Appleton cited the Heaviside layer of ionised gas at a height of 140Km, and above this a second layer later named the Appleton layer, strengthened by the sunlight at dawn and dusk which produced the identical glancing reflection. The waves were transmitted round the surface of the earth with relatively little spreading and decrease in strength. Furthermore by sending signals from Cambridge to Bournemouth receiving station he showed that some of the waves were reflected from the ionised layers of gas in the upper atmosphere to interfere at ground level with those waves proceeding along the surface of the ground. If the waves were in step a maximum response resulted but if out of step the received signal was minimum intensity. Altering the wave length at Cambridge led to changes in signal strength received, and he was able to calculate the height of the Heaviside and Appleton layers.

To have been a pupil of his just when these results were produced was an excitement and pleasure never forgotten. For me Appleton did more, since he suggested I should go to Cambridge to work in the Cavendish Laboratory under Sir Ernest Rutherford who had succeeded J. J. on his retirement. In 1925 having obtained my London degree I went to Cambridge and entered St. John's College where I took the 2nd part of the Natural Science Tripos amd also did research under Sir James Chadwick, Rutherford's protégé who subsequently (1932) discovered the neutron a component of the atom which explained isotopes.

The contrast with the course at King's was quite profound while the influence of a residential university particularly friendships with students in subjects other than the sciences and mathematics opened one's eyes to a fuller life. In London in the Wheatstone Laboratory I came mainly under the influence of the Professor and four or five lecturers, where-as at Cambridge there appeared to be a galaxy of talent with the great J. J. as the fountain head. Nevertheless I found that London offered very wide scope in physics with the individual line of research in the sister colleges to King's, such as University, Imperial, Queen Mary College, whilst Woolwich and Greenwich together with the leading hospitals had notable physicists. Representatives gave public lectures not only in their own colleges but at places like the Royal Institution, the Royal Society of Arts, The Institutes of Physics, Chemistry and Engineering, and the National Physical Laboratory at Teddington. We also had lectures from distinguished scientists passing through London from Europe to America or vice versa. Thus Einstein famous for his theory of Relativity, Bohr equally well known for his explanation of how emission spectra resulted from excited atoms, and Millikan who in America first measured with greatest accuracy up to that time the charge in the electron, were all scientists we were able to hear. Another factor of great importance was the availability to the student of books and periodicals from science libraries and the Patent Office library.

A minor criticism regarding the course at King's was in practical work since students worked in pairs on a course of experiments, the apparatus being assembled but rarely made by them. There was also a tendency to repeat too many standard experiments in the usual practical physics text books. There were exceptions when for example, the zoology professor asked our professor if my partner and I could assist in using a Nutting photometer to measure the haemolysis of cat's blood and a further investigation into the vibrations of sponge spicules was also required. The first year course was enlivened by the magnificent lecture-bench experiments performed by Dr. Curtis proving later a wonderful help to me in teaching the subject when I became a physics master at Manchester Grammar School. Submerging grapes in liquid air so that on removal from the liquid they were as hard as nails; calculating the speed of a rifle bullet by firing it into a heavy box of sand suspended from the ceiling and igniting soap bubbles filled with coal gas always drew applause and appreciation of the principles the lecture demonstration illustrated. Science received wonderful publicity and recognition in the Wembley Exhibition of 1924.

In 1925 I attended the British Association meeting at Southampton as a scholar. This was the first occasion for me to attend a conference where current research in science was debated and brought to our notice by researchers from abroad, particularly the Dominions as well as those at home. Fifty years ago, the attendance was smaller but just as keen as today and the social side included visits to places of local interest. At this meeting I recall the great Sir Oliver Lodge preaching at the 'Annual Service' on 'Physics and Reality', and his contribution to the discussion on partial control of smoke pollution by simple extraction of solid particles in the passing of gases up factory chimneys inside which were insulated electrified metal conductors.

At Cambridge as a preliminary exercise prior to engaging in a full time research project after taking a degree, it was customary to repeat some of the experiments in radioactivity in the 'attic' at the Cavendish Laboratory under the direction of Lord Rutherford's team of researchers. That is how I came to work for about six months under Dr. Chadwick with simple apparatus some of which we made in the workshop there. It was necessary too, to do our own glass blowing as well as master the art of evacuating the air from tubes and lamps where this was necessary. It was always the practice to start with the simplest of vacuum pumps and work up to the more modern electrically operated ones and it was just the same in using a lathe which I had to operate like the treddle of a sewing machine. With justification this period at the Cavendish was called 'that of sealing wax and string' operated on a shoe-string of finance, but it was unique training. Most of the experiments I performed were concerned with measuring properties of particles and radiations from the decay of radioactive substances such as radium then in extraordinary short supply, I repeated work done by Madame Curie's daughter Irene, whose husband the late Professor Joliot-Curie did so much to further the use of atomic energy. Dr. Chadwick then suggested I should assist a visiting Professor from Lvov, Poland, named Wertenstein, whose research problem was the separation of the isotopes of the element chlorine, so anticipating the separation by similar methods the isotopes of Uranium in the atomic bomb project.

My particular task was to make the involved glass ware which certainly developed my skill as a glass blower. All research students too, had to count the scintillations of radioactive particles on fluorescent screens so that Professor Rutherford could sort out those with the most sensitive eyesight required in his work on Radioactivity. Looking back I think a most enjoyable time in the laboratory was the tea break when Lady Rutherford assisted by wives of other senior researchers supervised the refreshments which always stimulated discussion and comment on physics. It was on such occasions that many original ideas were propounded which altered radically the techniques and scale of experimental physics. I recall two observations Rutherford repeated often 'The value of a 10% experiment before embarking on ultra fine measurement' and 'If only he had a million or more volts to smash atoms'.

St. John's being a large college had its own lecture rooms so the lectures in mathematical physics by Hartree and Cunningham were given in college. In London I fancied myself as something of a mathematician, but half a term at Cambridge convinced me that practical physics was more within my powers of research.

I must mention the tutorial or supervision methods at St. John's mine being directed by Hartree who subsequently moved to Manchester University where he was professor of Applied Mathematics, during which time he built the first analogue computer from meccano parts. His work was applied to revolutionise communications, computation, electronic control and developed into the whole field of Computer Science. In tutorials, the student prepares an essay on some topic, and in my case the contents were discussed by the supervisor and the two or three other students who form the group. This ensures reasonable personal direction and help not possible in the lecture theatre. Mention should also be made of the influence on Physics by the Mathematical Tripos, especially at that time in Schedule B syllabus where mathematics was applied to the sollution of problems in physics. As illustration, Eddington gave a series of lectures one term on the constitution of stars and astronomy in general. Information about stars is gained from examining the nature of light emitted. Thus the hotter the star the bluer its colour. Also the spectroscopic analysis of the light can indicate whether the star is double, receding or stationary. Great advances have occurred in our knowledge since Eddington's time by the use of radio telescopes of Lovell and Ryle, and by observation from places distant from the earth's surface with the aid of satellites. Possibly the biggest impact I received fifty years ago was the remarkable changes brought about by attempts to reconcile theory with experiment. Two seemingly irreconcilable views of the nature of matter and energy in studying the atom appeared to hold. In the case of light sources the radiations had at one moment all the properties of waves and the wavelengths of the different colours in the visible spectrum had been measured with great accuracy, yet on occasions, when light was absorbed by some metals, electrons were ejected as though the light beam was composed of packets of energy or quanta. Further the quantum theory of energy suggested at the beginning of the Century by Max Planck was proving extremely successful in explaining experimental results in heat, light, electricity and atomic physics hitherto a mystery.

The second big change was the decision that it was impossible to make a model of the working atom. Bohr, of Copenhagen had used Rutherford's conception of the atom as an example of the sun equivalent to the nucleus and the electrons circulating round it as the planets rotate round the sun. By a judicious mixture of classical or Newtonian mathematics and quantum theory, Bohr used the model atom of hydrogen to derive a formula for its spectrum lines with complete success. This was in 1913, but a decade later Einstein's theory of relativity was brought in to explain the fact that on close inspection the spectrum lines were sometimes double or triple and again there was partial success. All this theory was dropped when it was realised that no model would work and it was better to start afresh using mathematics which described what was observed and fortunately the appropriate mathematics known as wave mechanics, had been worked out in the middle of the 19th Century as a mathematical exercise. Born and Shrödinger and Heisenberg were most prominent in developing these ideas.

So in my time the big advances in physics have been in atomic physics, in X ray analysis with applications in the nature of the crystalline structure of matter. Also the low temperature phenomena with a wider understanding of the laws of thermodynamics are relevant. We have a clearer understanding of the nature of the various forms of energy and a parallel development in engineering and mathematical techniques. Experimental investigations are applied in the laser beam, the electron microscope, and ultra sonics. The overlap with other sciences as in chemistry and biology are further illustrations.

A brief comment is necessary on the laboratory course in physics at the Cavendish particularly the Part 2 of the Natural Science Tripos. Here the director was H. Thirkill, Master of Clare College, a Bradford man with the Yorkshire directness of a J. B. Priestley. Thirkill was ably assisted by Blackett in due course President of the Royal Society, and already one of Rutherford's star researchers. With extremely simple apparatus such as a treacle tin, barber's sprayer, a Whimshurst machine and his encouragement, I repeated Millikan's method of measuring the charge on the electron, with very satisfactory results. All who came to the Cavendish in those days were astonished at the somewhat crude and simple equipment, but modern research such as at 'Centre European pour la Recherche Nucléaire', (Switzerland) or at Massachusetts Institute of Technology, (U.S.A.) and any universtiy today, including the New Cavendish, involves complicated and costly apparatus made with the highest precision by engineers and laboratory technicians.

I left Cambridge in 1927 on my appointment as Senior Physics master at Manchester Grammar School which had a reputation for academic work with many scholarships to the Older Universities. Colleagues too were friendly and helpful in every way and from the physics angle, the support from the excellent mathematics department ensured a foundation for mathematical physics. The Senior Science Master was Mr. Newbould and he was keen to see that my requests for new apparatus were realised though the laboratories were well furnished by my predecessors. A further encouragement came from the laboratory technician Mr. Ormerod and his assistants which enabled us to make much equipment as well as working models. The subject always comes more alive if the teacher knows its history with the lives of the scientists and how they made their discoveries. In Manchester I was particularly fortunate in having access to the University Library, and help from Professor L. Bragg and his staff as well as my being elected to membership of the Manchester Literary and Philosophical Society, whose headquarters was 36 George Street, originally the home of the distinguished scientist, chemist and Quaker John Dalton. The library contained complete sets of such journals as the Proceedings of the Royal Society, the Academie Française, and the German Annalen der Physic, so one could read the original papers going back to Newton. In addition there was an excellent representative selection of current scientific periodicals, quiet rooms, a lecture theatre and a museum of Dalton's apparatus, books and personal particulars. The warden and his wife, who was housekeeper provided excellent teas and in winter a roaring coal fire in the library. Some of the distinguished scientists from the research laboratories of firms such as Metropolitan Vickers, G.E.C., and the Shirley Institute for Cotton Research, the University and Technical College were members and conversation was lively and interesting. At business meetings where a vote was necessary, wooden trays with black and white balls were used instead of voting papers a procedure dating back to Dalton's time. The technical colleges in Manchester and Salford, now Universities were also helpful and stimulating in the field of applied research in all branches of engineering and the varied industrial concerns from glass making to brewing. One of the most versatile physicists, Dr. Lowery, combined research in all aspects of sound with that of College organist with an unrivalled knowledge of organ building. Professor Bragg's chief line of research was the use of X rays to reveal the structure of crystals which has been extraordinarily fruitful culminating in the recent DNA structure. Dame Catherine Lonsdale, one of the former President's of the BNSS was one of Bragg's pupils.

When in 1933 I was appointed Headmaster of Hinckley Grammar School, I still continued to teach physics and in collaboration with my cousin Mr. E. Langton, Head of the Physics Department of Leicester College of Technology, wrote a text book of physics which merited the distinction of being chosen by the Forces Education Scheme in the 2nd World War.

Hinckley is only 14 miles from Leicester University and Loughborough University, and 25 miles from Birmingham, and 35 from Nottingham University. At one time or another I served in some capacity on each of these universities and was familiar with the lines of research in physics in them. Coventry and Rugby Technical Colleges also helped me to keep up to date.

I became an associate member of the Institute of Physics in 1932, and was elected a Fellow in 1943 for contributions to the teaching of physics. The Institute covers industrial and educational physics and I served on the Council for two years and was Chairman of the Education group from 1963 to 1966, a period which coincided with the new Nuffield Enterprise in teaching physics. It was through the lectures and conferences arranged by the Institute that one could keep abreast of discoveries and developments in technology, and as a committee member, and later Chairman of the Midland Branch meeting in Birmingham there was no difficulty in seeing these applied locally.

To illustrate the astonishing progress in physics I will briefly refer to the work of some prominent physicists of the first four decades of the century. Many of the photographs shown on the screen are loaned from the Cavendish Laboratory.

Pierre and Marie Curie—discovered Radium in the Uranium series and particularly the radium disintegration elements.

Marconi—illustrates the application in technology to practical wireless communication.

Perrin—verified the perpetual movement of atoms in the Brownian movement—influenced photography of the same and confirmed the Kinetic Theory.

Wilson—invented the Cloud chamber to photograph isolated charged particles and their tracks; a similar effect is seen when aircraft leave tracks in the sky at high altitudes.

Cockcroft and Walton—produced the first generation of ten million volt machines.

Lawrence—the American physicist invented the cyclotron for the same purpose, but attained much higher voltages.

De Broglie—of France propounded the equivalence of waves and particles and standing waves in the atom.

Chadwick'—discovered the neutron and explained isotopes.

Meitner and Hahn's—fission experiment first released of atomic energy.

Fermi—in America built the first atomic pile for release of atomic energy under control.

Michelson—carried out precision measurements in light waves, e.g. the number of pure red light waves in a metre.

Mott's—theoretical explanation of non-conductors and partial conductors showed how such devices as transistors which have replaced valves work.

Kapitza—the foremost Russian physicist developed a helium liquefier, for the lowest temperatiures, i.e. approaching absolute zero.

Modern Teaching and Trends

Teaching methods have undergone complete changes in presentation. Not only does the student perform more experiments which test his skill and inventiveness, but the text books are more lively and capable of stimulating interest. In the older books the experimenter is actually shown using the apparatus. Syllabuses are constantly revised and stimulate the student with illustrations from recent discoveries. Naturally much more is demanded of the teacher. The Association for Science is largely responsible for this new outlook and change. The Duke of Edinburgh is Patron.

Finally, recent research into the nature of the atom and its component parts has led to profound philosophical developments. The famous 'Uncertainty Principle' states that there is a limit to our knowledge of ultimate particles composing the atom, since they appear to be able to give limited information. Thus if we try to measure the speed and position of an electron, the light energy used disturbs it, so that one cannot state exactly where it is. Heisenberg's uncertainty principle states the degree of tolerance, that is the probability of the position and speed which are linked to the quantum of action involved. Action, which is the product of energy and time, is the real unit or quantum.

I have dwelt at considerable length with the researches on the nature of the atom but the progress made in astrophysics and cosmology, in electronic computers and cybernetics (steersmanship), in solid state physics ranging from complex crystals, new metallurgical materials, super conductors and semi conductors together with discoveries in light as applied in laser beams, and the parallel work in sound and ultrasonics as well as in heat and thermodynamics shows how wide has been the progress in physics in my generation.

Lord Snow's famous remark that 'No-one today can be considered educated without a knowledge of the second law of thermodynamics' must be briefly mentioned as it enlarges the concept of entropy or mixed-up-ness of matter and is therefore a development in the philosophy of the running down of the universe.

Technological change remains with science, physics playing a major part. British scientists have made great contributions to our knowledge of the universe, particularly in original discoveries, but we have often left the exploitation of these discoveries to other nations, and impoverished our own industries. Opportunities to develop our best brains come by the best teaching in schools colleges and universities and a sympathetic and cooperative understanding of the needs of the industrial age.

The world is a marvellous place and the older we get the more we realise the wonder and majesty of it, and one is greatful for being alive when glimpses of its grandeur have been so widely extended.

My thanks are due to Professors Mott and Pippard for arranging the loan of the slides from the Cavendish Laboratory and Mr. Brooks of the Bournemouth College of Technology for much help in preparing slides and also to Dr. Bailey, Principal of the College for his cooperation.

Pray God that Man's harvest by men may be shared,
Till each of earth's peoples from Hunger is spared,
Till nations earth's plenty together increase,
and gather God's harvest of justice and peace.

Report of Council for the year ending 30th September, 1976

Intellectually this has proved again a most successful year. For the wealth of interesting and instructive material disseminated by the lectures and field meetings a special debt of gratitude is due to the Chairmen of Sections under their Chairman in Committee, Miss Bennetts. Eleven one-day meetings were held, including those as far as the Wildfowl Trust, Slimbridge; Kew Gardens; Geology Museum, South Kensington; and Berkeley Castle. Thanks are due to Mr. and Mrs. Thomas for organising the 5-day meeting to Oxford.

Regretfully, Mr. H. C. Heales resigned from the chairmanship of the Geology and Geography Sections. It is fortunate that we have such excellent successors as Mrs. B. Taylor and Miss F. M. Exton respectively to take over these sections. The latter was Chairman of Geography and also Chairman of all sections for many years until she left the area, but has now returned. Mr. Frank Oldham (President-elect) after serving for five years as Chairman of Physics and Chemistry has handed over to Mr. T. A. Crawshaw, a worthy successor.

Administratively, it is with very great regret that we have to report the death of Mr. A. H. French, who, for seven years, carried out the office of Hon. Assistant Treasurer so efficiently and conscientiously. We are fortunate that Mrs. I. Towndrow has taken over so effectively. Miss Smith has completed one year as Hon. Editor very successfully. The Hon. Editor is responsible for the publication of the Annual Proceedings, from which it has been decided to omit the list of lectures, meetings and visits and also the statement of accounts, owing to the very high increased cost of paper and printing. After his unstinting efforts on behalf of the Society Mr. Heales most regretfully resigned as Hon. Secretary. Prior to this, he was in the process of spending much time investigating the Society's premises in very great detail with a view to producing a plan making the best use of the accommodation available. As no one was forthcoming to take over, Mrs. V. A. Heales, Deputy Secretary, with most commendable Society spiritedness, has filled both offices. For four exacting years, Mr. F. W. Wilson, Hon. Treasurer, using his great expertise has most carefully husbanded our finances in all its facets. His advice on our investments has been invaluable, and he has been unstinting in his efforts to obtain the most advantageous premium for our insurances, the revision of which was necessary due to the very high inflation. He expressed a wish a year ago to give up his office, but in spite of appeals, as with the office of Hon. Secretary, no offers or recommendations have been forthcoming. Inevitably with passing years, members who have held office, in some cases for over a decade, must feel, quite rightly, that they should be released. Your Council urges that members come forward, initially perhaps as Deputy, for one of the many offices that are necessary if the Society is to function successfully as it has done in the past.

Financially, with the present continuing high inflation the problems are as serious as ever. In consequence it became most necessary to increase subscriptions as from 1st October, 1976. This will help, but it is probable it will mean a decrease in membership. To supplement our finances, members can do much by making a continuous and special effort to increase our membership, by signing a Deed of Covenant, and by donations. Council is indebted to Mrs. H. M. French and Mr. T. A. Crawshaw for their respective handsome donations of £200 and £35. "Bring and Buy" Stall, organised by Miss Bennetts brought in £32. A bookstall ran by the Librarian and Assistant Librarian produced £60 for the purchase of new books.

Socially, the Council expresses, again, its gratitude to Miss M. Allen and Mrs. Chomé for the success of the Annual Garden Party, which took place in ideal weather, and also to the former for the New Year Party, which included Scottish dancing by the local Caledonian Society. These two activities produced £80 for our funds. On both these occasions Mrs. Parkinson and her very entusiastic band of tea-makers are to be congratulated on providing such excellent fare.

In accordance with the policy approved by your Council, our second Open Day was held on 17th September. This was most efficiently organised by Squadron Leader Banks with the very able co-operation of the Curator and Chairmen of Sections, who explained the exhibits to the visitors. At the end of the morning and afternoon sessions coloured slides were shown illustrating six natural science subjects with an excellent commentary on each. Concluding remarks were made by Brigadier Edwards expanding on the Society's activities throughout the year. Several visitors joined the Society during the day.

Members of the Social Studies Group of Lansdowne Evening Townswomen's Guild visited the Museum under Mr. Bray's guidance. On 8th July under the guidance of Mr. and Mrs. Thomas members of the National Council of Women held a Garden Party at our premises. Mr. J. Robinson gave a lecture on "Wedgwood Pottery" with an exhibition of the pottery.

An item of interest during the year was the inclusion in the *Dorset Magazine* of an article based on the Presidential Address given by Mr. S. C. S. Brown on 18th October 1975. This was illustrated with photographs taken in our Museum and has placed the Society well "on the map" of our new county.

The Society has not been without romance as Mrs. F. M. Coote, a member of the Tea Committee, became Mrs. Crawshaw, wife of Mr. T. A. Crawshaw, Chairman of Physics and Chemistry Section. We wish them every happiness.

The membership is now 485, as compared with 456 on 30th September 1975, an increase of 29.

In conclusion, your Council expresses its deep gratitude to all officers, all Chairmen of Committees and their members for their conscientious and untiring contributions to making the Society such an intellectual and social success during the year.

General Meetings, 1975-76

Mr. and Mrs. H. C. Heales presented an anthology of pictures, music and poetry. Haydn's Creation introduced the programme followed by Schubert's Spring Symphony and readings from works of Wordsworth and John Clare. Scenes of summer and autumn illustrated by excerpts from Sibelius and Beethoven were enhanced by the poem of Christina Rossetti "Summer" and Kipling's "Glory of the Garden" The programme ended with Vivaldi's "The Seasons" appropriately accompanied by Robert Bridges' poem "London Snow".

Mr. Graham Teasdill spoke on Bournemouth Municipal Museums and their Collections of which he is Curator. The Russell-Cotes Art Gallery and Museum was built in 1894 as the private home for Mr. and Mrs. Merton Russell-Cotes, who, in 1908 presented it, together with all their collections, to Bournemouth. Slides were shown of the various collections. In his previous lecture "Animals in Art" he used slides of pictures from the collections of Russell-Cotes, Victoria and Albert, National and Lulworth Art Galleries. Works chosen from 17th to 20th centuries included paintings by Vandyck, Van de Velde, Edwin Long, Constable, Landseer, Gainsborough and a local artist, Miss Lucy Kemp-Welch.

Mrs. June Irvine gave a talk on her Himalayan Trek. Before starting out she visited Agra and showed slides of the Fortress, erected by Akbar in 1566. Inside the walls is the palace of Shar Jahan and outside them is the Taj Mahal. In Khatmandu the beautifully carved palaces of the maharaja and the narrow streets with colourful market scenes were well portrayed.

Shots of Mount Everest and other peaks with a foreground of pink, red and white rhododendrons, from which our British species originated, were spectacular.

In July Mr. W. H. Lee gave a topical lecture on Montreal concentrating on early attempts to found a settlement on the Island of Montreal and its early history and of the modern skyscraper city. Also mentioned were the early journeys of Cartier and Champlain and the first permanent missionary colony established by Maisoneuvre. Mr. Lee also spoke about the Fur Traders; Cadillac, founder of Detroit; La Salle, founder of Chicago; Verendrye, first man to reach the Rockies and finally Simon Fraser who gave his name to the main river of British Columbia.

In September, Miss K. M. Pawson gave a talk on the ancient roads and tracks which converge on Blandford. Some of her observations were the result of personal expedition and talking to country folk.

Miss Mollie Collinson gave an interesting lecture on the Peloponnese illustrated by excellent slides. Starting from Athens the tour included visits to Mycenae, Olympia, Sparta and Delphi. On the return to Athens the Parthenon was visited.

Dr. T. M. Bell gave a lecture on Andalusia. Many of the places visited showed a strong Moorish influence in architecture. In Granada the beautiful gardens and buildings of the Alhambra were well depicted by superb slides. Dr. Bell also showed slides of alpine and coastal regions flora and concluded with panoramic views of Sierra Nevada which he termed untouched Spain.

On January 31st another member, Mr. E. R. Bidder gave an illustrated talk on cruising across the Atlantic, visiting the West Indies and returning via the Azores and Madeira, with interesting descriptions of the ports of call.

K. Milner Bennetts, Chairman of Council

Zoology—Mammalia

FIELD MEETINGS—

On February 19th 1976 there was a joint inaugural field meeting of the botany, mammalia and ornithology sections for the Parley Common Project, followed by mammalia meetings in June and September. The dry weather slowed down tracking operations for small mammals. Signs of badger, fox and rabbit were definite and actual sightings of roe deer and water voles were recorded.

Field meetings in the New Forest and Dorset were led by Mrs. M. Arnold, Mrs. Beckwith, Dr. Bell, Mrs. Crane, Alex Grossert, Mrs. Nicklen, Miss Noll, G. Parkinson, Mr. and Mrs. S. A. Scott, R. Wall and myself. No new species for the areas were recorded. Hares, *Lepus capensis* as reported in Proceedings 72/73, in Dorset numbered 17 but they did not perform their Mad March Hare "spectaculars". The pond dipping expedition in the New Forest was made difficult because of the drying out of many ponds but a medical leech, identified by Dr. Bell, found in one pond was of interest being more common in the New Forest than elsewhere. A marine walk on the Hengistbury Head beach, included a keen lookout for Japanese seaweed, *Spargassum muticum.* The marine life was chiefly concerned with species of crabs including the hermit crab. Other shells were a mussel showing the byssus (threads) and the slipper limpet which is one species that undergoes a sex-change. One enormous specimen of oarweed or club weed was picked up. Methods of reproduction of some sea-weeds, of which there are over 700 species in the British Isles, were explained.

The deer stalking of red, *Cervus elaphas,* Fallow, *Dama dama* and Sika, *Sika nippon* were reasonably successful but those of Roe, *Capreolus capreolus* were less so, although one or two sightings at close quarters were most rewarding. The sika deer project is still in operation. (For notes on deer see Proceedings 1969/70 and 1972/73.)

Three coach excursions took place during the year, to Romsey for the salmon leap, Horse drawn barge on the Avon and Kennet Canal, and a visit to the Courage Shire Horse Centre near Maidenhead where a guide and the leader talked about the horses.

Mammalla Lectures

LECTURES—

Mr. D. Higginson, a local naturalist and wildlife photographer, showed his film including the rut of the red stag when rounding up his hinds. Then followed four colorations of the fallow deer, common, black, white and menil and a fawn only a few hours old, ants constructing huge ant hills, freshwater pond life, the dance of male adders for possession of females and territory, and the emergence of a grass snake from its egg.

Mr. R. M. Blomfield showed his film of the grey seal, *Halichoerus grypus* which resided near Sandbanks between 1970 and 1972 where it spent much time basking and swimming. During that time it changed its baby coat for the spotted one of the adult. His front flippers were used to remove sand from its eyes and to scratch almost inaccessible parts of its body with the expertise of a contortionist.

Mr. F. D. Gillespie-Smith spoke about some facets of his South African journey among the animals. Of particular interest were his observations on the life of the bull frog. Also of interest was the emergence of a baby crocodile from its egg.

Three lectures were delivered by the chairman. The first "Shells in Art", was illustrated by slides and a selection of world-wide shells from the Society's collection and those of the chairman.

"Interesting Creatures of the Galapagos Islands and Ecuador" was the title of the second lecture. The Galapagos Islands lie mostly just south of the equator off the north west coast of South America. The most interesting of the creatures were marine and land iguanas, giant tortoises (most famous of all Galapagos "residents"), sealions, fur seals, penguins, Darwin's finches, blue-footed boobies, magnificent frigate birds and flightless cormorants — flightless because a plentiful supply of food is always at hand and preditors are minimal. Two things were outstanding — the tameness of the creatures and the fact that creatures of the southern hemisphere e.g. penguins and fur seals lived along-side those of the tropics on the equator.

Ecuador is a small but interesting country on the west coast of South America lying between Colombia and Peru and dominated by the Andes. Here live the vicunas, llamas, alpacas and guanicos.

Anaconda Island, was reached by canoe on the Napo River, a tributary of the Amazon. With two Indian guides a trek was made through the jungle where, among other creatures, boa constictor, tapir, and hoatzin (a very primitive bird) were seen. Howler monkeys were only heard.

The third lecture, "Travels among Wild Creatures in Far-Away Places" covered some of the countries which the chairman had visited.

Bermuda. For nearly 300 years the Cahow, a bird, in appearance like the Manx shearwater, was thought to be extinct. It was not until 1951 that the breeding grounds were discovered in the islands in Castle Roads off the coast of Bermuda, and I had the thrill of visiting them in January 1965 with David Wingate, the warden of those islands who told me of their history. In late October the Cahows arrive at the breeding grounds, clean out nests in burrows and take in leaves and sticks. By late November they mate after which they disappear out to sea. About the first week in January the female returns and lays one large egg, incubation is 51/53 days and is shared by both parents. Young hatch between 20 February and 12 March. The chick is brooded for four days, after that it is left unguarded during the day. It is then the danger lies, for the yellow billed tropic bird also uses the same habitat as the cahows. They enter the burrow and destroy the nestling, even using it as nesting material. David Wingate has overcome this problem by inserting a cement rim inside the burrow entrance. This allows the slightly smaller cahow to emerge but prevents the tropic bird from entering.

Ethiopia. One reason for visiting that country was to visit the habitat, now restricted to central highland and northern Ethiopia, of the gelada baboon, *Theopithecus gelada,* discovered in 1835. A group of about 15 is controlled by a dominant male. Grooming in important and much time is spent in the early morning so doing. Food is mainly vegetarian and is eaten while seated. At night they retire to the steep cliff edges of the gorge.

Of the following Countries which were visited Uganda, the Seychelles, Tunisia, Zambia, Botswana and Australia reports of the creatures have appeared or are appearing in other sections or in previous Proceedings so I have omitted repetitive notes in this issue. E.g. Marsupials and monotremes Proceedings 73/74.

Assam. Golden langur, *Presbytis geei* for which a permit had to be obtained from Bhutan to cross into that territory across the Manas River. The golden langurs, discovered as a new species in 1960, in the foothills of the Himalayas. They feed in the tree tops on fruits and leaves.

Ecuador. Vicuñas have longish necks and vary in colour from cream to chestnut brown. They live in the high plains of the Andes at about 21,000 ft. Llamas, alpacas and guanacos live at around 15,000 ft. They are all of the camel family which evolved on the grasslands of North America millions of years ago and migrated to South America and Asia. Before the Spanish Conquest vicuñas numbered 1,000,000 plus. Today there are between 10,000 and 15,000. Their wool is of the finest quality but of a very slow wool-growth. Thus, vicuñas have been crossed with closely related domestic alpacas to produce paco- vicuñas, which grow longer wool at a faster rate and of nearly as high a quality. The territorial male controls the group of about 15, and he chooses the living area and establishes the size of the territory which can food-wise accommodate the herd.

Norway. The Lapps of the far north are small and sturdy and make a colourful picture in their national costumes. For the most part the Lapps are nomads who follow their herds of domestic reindeer upon which they rely for milk, meat, clothing and shelter. They are also used for transportation by pulling a narrow sleigh called a pulk.

Mangrove Swamps, Indian and Pacific coasts. Fiddler crab of the *Genus Uca,* to which all fiddler crabs belong, lives on beaches backed by mangrove swamps. Of special interest is the highly-coloured outsized left or right claw. This claw has two functions: One for signalling, which ranges from an up and down movement horizontally to a strenuous overhead waving motion. If a female is attracted by the male's antics she will follow him down his burrow and mate. The second use of the enlarged claw is for fighting among the males either for territory or to secure a mate. They move about their territory with eyes raised on long eye-stalks. A hot day stimulates more vigorous signalling, with a bowling-like action while standing on raised legs, increased to further fervour if a female is in sight. The claw is brightly coloured but hot sun and expended energy often turns it white and this gives the crabs the name of ghost crabs.

In conclusion I wish to thank all those who have contributed to the success of my section, whether as leaders or participants, and especially to Mrs. Arnold.

K. Milner Bennetts, Chairman

Archaeology and History

A review of the year's activities reveal that the section provided three visiting lecturers and nine lectures were delivered by members of our own Society, showing that there is an abundance of talent in the section.

The visiting members were E. B. A. Edwards, B.A.(Cantab), speaking on "Chinese Art" this was the Christmas Lecture and a follow on from the previous years Lecture on "Icons".

In February F. Turland, A.S.I.A., Head of Visual Communications, Bournemouth and Poole College of Art, addressed the members on "Merchants Marks and their History".

May lecture was given by G. R. Wicks, B.A., M.A., Senior Lecturer Bournemouth College of Technology, on "The ideology of the American Revolution".

All these lectures were first class and drew capacity audiences.

Turning to members of our own Society, the first lecture of 1976 season was given by W. C. Channon, deputy chairman Archaeology and History Section and he spoke on "Some Impressions of Italy" with beautiful slides of Pompeii, Capri and Rome.

In January Miss K. M. Bennetts, F.Z.S. regaled a full hall with "Shells in Art" and showing her own collection and our Museums display.

March Lecture given by Mrs. G. M. Thomas, M.A., B.Litt., on "Oxford Ancient and Modern" and in view of the forthcoming Five Day Field Meeting at Oxford, this proved a very popular lecture.

In April W. C. Channon delivered his second lecture on "Journey's in Yugoslavia, Dubrovnik to Albanion Border", illustated with many slides.

The June Lecture by Dr. K. R. Capper, Ph.D. traced the history and healing properties of plants from Antiquity to the present day which proved a most absorbing story.

In July E. C. Peake spoke on "King Alfred and Saxon Wessex" presenting history in his own entertaining manner, and showing some rare slides.

The August Lecture delivered by Mrs. H. S. Dyke on "Paris Revisited" an amusing incident occurred, the doors of the Hall had been left open because of the heat wave outside, Mrs. Dyke was speaking of a Paris cat when the caretaker's black cat walked into the room and startled the speaker, and caused quite hearty laughter until the Curator escorted the cat out.

The final lecture of the season was given by Mr. E. Bidder on "A Journey to the Equator" splendidly recounted as though we were passengers on the great liner and he as Captain and courier, inviting us to step out at the many Ports of call.

To all the above, who with their information and pictures, we are indebted for a very successful year.

John Robinson, Chairman

Astronomy

There were six lectures during the year, three being given by the Section Chairman.

His first, "Basic Astronomy", gave a brief survey of the subject as a science. The second described the historical development from the earliest times.

The last was entitled "Cosmology".

Mr. Colin Pither, F.R.A.S., Chairman of the Wessex Astronomical Society, gave the remaining lectures. His first, "The Evening and Morning Stars", was devoted to the planets Mercury and Venus and the latest findings of space scientists were explained.

The next, "Colours in the Universe", was copiously illustrated with slides and covered all aspects of the importance of the light spectrum.

His final lecture "Visitors to the Earth" concerned meteors, and he stressed the scope for the amateur observer.

Graeme Nash, Chairman

Botany

We had some very interesting lectures during the early part of the year, all illustrated by beautiful slides. Some were given by members, and some by visiting lecturers. Commander H. E. Hunt told us about the "Faces of an Orchid" and Sqdn.-Ldr. Banks continued his study of the Flora of Ben Lawers. Mr. W. S. Strain introduced us to the Iridaceae of the Cape, while Miss Rushton showed us some of the beautiful flower transparencies donated by the relatives of the late Major K. Richman. Later in the year Mr. and Mrs. D. Parish again delighted us with another interesting and instructive talk on the "Weeds and the Wilderness", illustrated us usual with their wonderful slides.

We were fortunate with the weather on most of the Field Meetings this summer. On a beautiful day in June, Miss E. M. Whitaker took us to Ballard Down and a large number of flowers were found, including a single plant of *ophrys apifera*. Later in the year the unusually dry summer enabled us to walk dry-shod over the normally wet bogs of Parley Common and examine closely many specimens of *gentiana pneumonathe. Spiranthes spiralis* were found in quantity on Broadley Heath although owing to the drought many of the expected flowers in this area were either very stunted, or long since over.

We should like to thank the many people who have helped to make the year so interesting, including all the lecturers and leaders of Field Meetings. I would like to thank especially Mr. S. A. Scott, who stepped into the breach and helped to lead the Charlton Marshall Field Meeting, and Mrs. A. K. Hunt for her chairmanship, at short notice, of the lecture given be Mr. and Mrs. D. Parish. *M. J. Lunn, Deputy Chairman*

Geography

There are two ways in which members can enjoy and profit from the activities of this section. Firstly impressions of far-away places provide unlimited interest and perhaps a longing for travel and adventure.

Dr. Tattersall recalled a visit to Asia Minor and brought to life with the aid of superb slides and vivid descriptions many once famous cities including Ephesus, Mitelene and Tros. A far-flung journey took Miss Bennetts to Ecuador with its fertile tropical plains, snow covered Andean peaks and vast remote interior accessible only by river. Quite different are the off-shore Galapagos Islands with their fantastic volcanic scenery and strange animal life. Mr. Evers from York gave an illustrated talk on "Yorkshire's loveliest river", this proved to be the short river Esk which rises in the Yorkshire Moors and flows through delightful countryside to the sea at Whitby. The Chairman described the mountains of Eire showing their former connections with the uplands of Great Britain.

The second branch of our activities centres on the interesting area in which we live for it gives us ample opportunity to study at first hand many of the basic geographical principles which can then be applied to wider horizons.

The evolution of the Bournemouth coastline, the erosion of the cliffs and the peculiar formation of the Chines were studied in a walk from Alum to Branksome Chine. A talk on the site of the walled town of Wareham between the Frome and the Piddle was followed by a field meeting in which the differing scenery and human activities of the flood plains, heathlands and chalk uplands were studied.

Thanks are due to our lecturers, projectionists and all who attended the meetings. *F. M. Exton, Chairman*

Geology

The geological section visited the Geological Museum in South Kensington led jointly by our Curator, Mr. Bray, and the chairman of geology. It was interesting to see the excellent new arrangements made by the museum to assist people with only a little knowledge to understand earth sciences.

A successful visit was made to Peverel Point where the nature of both synclines and anticlines are so well exposed, We also studied the Purbeck age rocks and the so-called Purbeck marble used so freely in our local churches.

The chairman lectured on the layered structure of the earth; some geologic terms were illustrated by old slides from our valuable collection. The lecture finished with a short geological history of the earth illustrated by charts kindly duplicated by Miss Allen.

In conjunction with Miss Bennetts' section a visit was paid to Hengistbury Head where, owing to the dry weather the strata of the rocks was particularly clear. It was of great interest that the Melanterite, hydrated iron sulphate Fe SO_4 $7H_2O$ had dried out on the surface of the rocks Melanterite is used by tanners, dyers and ink manufacturers and was so used in the early days of Bournemouth.

A visit was made to Lyme Regis to study the early Jurasic rocks. Unfortunately the chairman who should have led the excursion was ill but her place was very ably taken by Mr. Lee to whose we are all very grateful.

A planned visit to the Geological Terrace was spoiled by a very heavy storm and few people ventured out. We hope to repeat this visit as the Geological Terrace is a valuable addition to the Russell-Cotes museum, in fact there is only one other such Terrace in England.

Changes have been made in the arrangements of exhibitions in the cases devoted to Geology and we hope to continue to show different specimens of our excellent collection of minerals and fossils. *Beryl Taylor, Chairman*

Physics and Chemistry

One of the problems that faces the Chairman of the Physics and Chemistry Section of a Society such as ours, is how to interpret the terms of reference in such a way as to provide lectures of general interest. Following as I do in the wake of Mr. Oldham, I trust I have not departed too far from his sound judgement in the lectures I have had the privilege of arranging.

Since Industry, if not actually based on physics and chemistry, is strongly influenced by them, I have had no hesitation in including several lectures with an industrial flavour. The December lecture by Mr. W. R. B. Wilson of the Southern Gas Board on the North Sea Gas Project gave an account of the early production of gas from coal by William Murdoch in 1792; the change of emphasis to oil as the raw material in the 1950's owing to the increasing price of coal; and, in turn, the increasing price of oil leading to the search in the

North Sea which, as well as oil, discovered large reserves of methane. It was only 12 years ago that the decision to convert the whole of the national system to Natural Gas was taken, and the implementation of this decision is nearing completion.

Dr. T. H. Blakeley drew on his recent experiences to describe, in his lecture in February, the enormous mineral resources in Australia, and the research efforts going in to the exploitation of these resources. He showed us an interesting film depicting the mining of these minerals.

The March lecture by Mr. C. Czapran of Chloride Stand-by Systems on Recent Developments with Batteries described the familar lead-acid "accumulator" and the changes which had been made in its design to decrease its weight and bulk and increase its capacity—changes which, however, did not cause it to depart from the original chemical reactions. We were given accounts of some of the more exotic types of cell evolved for special purposes, but the message was that the lead-acid battery was here to stay for a long time.

Perhaps more strictly in the line of Physics was the lecture by Mr. J. S. Brooks of Bournemouth College of Technology in January—A Question of Measurement. He examined the necessity for measurement in connection with all scientific and industrial work, and showed by demonstration some of the factors which had to be considered in order to make measurements which were accurate and in which confidence could be placed.

Rather further from the beaten track—in more senses than one—was the November lecture by Mr. F. Daldry of the Y.M.C.A. on Modern Mountaineering. This took us to the top of the Kleine Matterhorn, and included much information on the influence of modern technology in providing lightweight equipment for climbers.

The October lecture was by Mr. E. E. Young of the Southampton Weather Centre, and included a film showing meteorological methods in use today. Here measurement plays an important part—not one but thousands, which have to be correlated to enable the weather pattern to be predicted.

Industrial Archaeology—in spite of purists who hold that there is no such thing—was discussed in a lecture in April by Dr. E. A. Course of Southampton University, and, for a non-existent subject proved to be extremely fascinating. Early industrial buildings, early machinery, were now being preserved or at least catalogued, so that the development of technological progress over the last 200 years could be traced.

In his lecture Computers, Communication and Modern Life, Mr. T. S. McLeod of Plessey Ltd. ranked Engineers equally with Artists, Philosophers and Theologians. The computer was a machine which could accomplish an enormous amount of routine work in a very short time, whether of the nature of calculation or office book-keeping, and the computer found its rightful place in the running of libraries, hospitals, retail goods distribution, weather forecasting, in addition to academic work involving complicated calculations. Provided—and this is the important point—the programme was correct, the work turned out would be correct; the extreme diversity of human conditions and human behaviour did mean that the computer sometimes met with problems which needed the intervention of an operator to rectify. The lecture ended on the comforting note that a Committee was in being, charged with limiting the amount of information being passed on from one place to another.

The June lecture was by Dr. G. H. King, of Bournemouth College of Technology, on Science in Industry, in which was described the many branches of science involved in one particular manufature—that of detergents. We were shown how the chemist, the toxicologist, the physicist and the dematologist were concerned in testing the products under all conditions of use, until their final degradation by sewage disposal plants into harmless substances. A lucid explanation of the working and uses of the electron microscope formed part of this lecture.

I am most grateful to the lecturers and organisations who have so freely given their services; and to the members of the Society for their suggestions and support. *T. A. Crawshaw, Chairman*

Zoology—Entomology

Meteorological conditions determine environment. This season, the average rainfall in our area during the last 25 years was 16″ (1″=2·45 cm). The fall up to July in 1975 was 12·43″ but for the same period this summer was 4·78″. This summer the total sunlight hours 1 April to 30 September inclusive, was 1446·1. Precipitation for that period was 06·764″. By contrast, the writer, between mid-May and mid-July whilst in the mini-climate of Glen-Coe—Fort William—Fort August experienced 16·5″ of rainfall. This contrast resulted in Lepidoptera and Odonata emergence in the Highland Region being about three weeks late on average. In the South, Insecta generally were on average a month ahead in activity. It was a very good season for some migrants to the U.K. e.g. *V. atalanta and V. cardui* (latter still emerging mid-October)—*N. antiopa—H. convolvuli.* Although there was a trend towards an increased number of subsequent broods in some species of Lepidoptera, the populations were reduced by the desiccation of food-plants. e.g. A second brood of *A. selene* in Ferndown forest, one male only noted, 4 August. Generally there was over population among many Lepidoptera species and consequent local colonisation migration. e.g. The three large Fritilliaries in woods near Salisbury —*L. coridon* seen in many urban gardens miles from the nearest chalk localities. etc. The following recorded data illustrate the foregoing observations:—Two *V. Atalanta* seen on Colehill 6 May (probably after hibernation there). —large numbers observed on the coast and flying out to sea (possibly on migration to the Continent?)—*P. argus* on wing 22 June—*L. camilla* and *A. iris* on wing mid-June—*C. argiolus,* on wing start of July, when buds of second brood food-plant undeveloped.—*N. antiopa* seen in garden at Hinton, 6 September.—Another observed by the writer after being disturbed from a furze bush about two miles east of Burley, 6 October.—*V. atalanta* and *P. c-album* still on wing mid-October and apparently "roosting" in Beech hedge (possibly will hibernate there in company with *c-album* which do so each year. —*C. crocerus* near Swanage 7 September.—*G. rhamni* still flying 6 October.—Ondonata species seen two months after usual broods over. e.g. *I. pumilio* noted mid-September at a locality in S. of N.F. It will be very interesting to record the effects of these phenomena upon Insecta next season.

This section arranged 5 lectures and 6 Field days (the latter had an average attendance of ten members during the period under review.

The writer's thanks are acknowledged to all those who so kindly sent in their observations. *J. L. C. Banks, Chairman*

Zoology—Ornithology

Once again we come to the end of an interesting and successful year of Field Meetings and Lectures.

The long hot sunny summer of 1976 has resulted in a high level of breeding success among seed and insect eating birds, but the terrible fires in the latter part of the summer have destroyed the habitat of many of our heathland birds including the very local Dartford Warbler.

In November and December of 1975 we visited Tanners Lane on the Beaulieu shore and Brands Bay in Poole Harbour, and were able to record a number of interesting duck and wading birds which pass through this country on migration and sometimes stay to winter on our coasts.

Duck and the small Bearded Tit, or Reedling, were the main reasons for a Field Meeting at Radipole Lake near Weymouth in November. There is now a breeding colony of Bearded Tits established in the reed beds at Radipole and these can often be seen from the paths on the newly established R.S.P.B. Nature Reserve.

We were surprised to see three Water Rail standing in the open in the river at Kingston Common in December. The Water Rail is a most secretive bird and usually betrays its presence only by its weird shrieking calls, often likened to pigs being killed.

We again took part in the International Wildfowl and Wader Count in February 1976, and covered the area of Poole Harbour bordering Shore Road, Poole Park and Baiters. We turned in a good count of grebe, Brent Geese, duck including Eider, waders and gulls.

Unfortunately we were forced to cancel our proposed trip to the Chew Valley Reservoir, near Bristol, as owing to the continued dry weather, the Reservoir was too low in water to attract many duck or grebe. However, a very enjoyable coach trip to the Wildfowl Trust Grounds at Slimbridge took place in January, and we were able to see large flocks of White Fronted Geese on the Saltings, and other wintering wild birds such as Bewick Swan and Pintail duck which join the Collection on the lakes.

In the spring of 1976 the Zoology Sections began a Survey of Parley Common. It was decided to concentrate our observations on an area of woodland, heath and bog to the west of Barrack Road, and a map of the area comprising about 1½ square miles was drawn for us by Mr. John Follett. Each Section would visit this area in spring, summer, autumn and winter during 1976 and a report would finally be drawn up comprising the findings of the three Zoology Sections. To date the Ornithological Section's most interesting 'find' has been sightings of Dartford Warblers in three separate places in the area, and we have every reason to believe they were breeding.

In July we went to Hampton Ridge, an area much favoured by the Dartford Warbler. Before leaving the car parking space, I played through a recording of the song of the Dartford Warbler to give Members an idea of what to listen for. When I switched off my tape recorder the song continued. A Dartford Warbler was perched, singing for all he was worth, on top of a gorse bush a few yards away, apparently furious that another male bird had invaded his territory.

We again found Green Sandpipers on a small pond (the only one with water on the Common) at Kingston Common in August. These birds are passage migrants and turn up regularly in early autumn on watercress beds, sewage farms and ponds.

Knot, Curlew Sandpiper, Spotted Redshank, Greenshank and Little Stint combined to make a memorable Field Meeting at Keyhaven Marshes at the end of August. On a fine, warm day with only a light wind we were also able to see falls of Yellow Wagtails and Whinchats gathering before leaving for their winter homes.

We had a most interesting lecture by Mr. Rhys Cox on the Barn Owl in October 1975 and in the New Year Miss Milner Bennetts, F.Z.S. spoke to us as 'An Amateur Bird-Watcher in the Galapagos Islands'.

I am most grateful for all the help I have received from Members who have led Field Meetings for me during the past year, to my Deputy Mrs. Vera Follett, and to all other Members who, by their keen interest and enthusiasm have made it a pleasure to plan the programme. *L. M. Maddox, Chairman*

Local Record List of Birds of Particular Interest

Slavonian Grebe, *Podiceps auritus*. 13th September, off Sandbanks.
Gadwall, *Anas strepera*. 12th December, Brands Bay.
Eider duck, *Somateria mollissima*. 13th February, off Sandbanks. 8th April, Hengistbury.
Brent Goose, *Branta bernicla*. **60,** 12th December, Brands Bay. **12,** 13th February, Poole Harbour. **Flock,** 25th March, Keyhaven.
Whooper Swan, *Cygnus cygnus*. **In flight,** 19th December, Kingston Common.
Sparrow Hawk, *Accipiter nisus*. 5th March, Parley Common. 25th March and 31st August, Keyhaven.
Water Rail, *Rallus aquaticus*. 4th November, Sowley Pond. **3,** 19th December and **1,** 20th August, Kingston Common.
Golden Plover, *Charadrius apricarius*. **c 240,** 7th October, Moyles Court.
Whimbrel, *Numenius phaeopus*. 8th April, Hengistbury. 11th May, Coward's Marsh.
Black-tailed Godwit, *Limosa limosa*. 12th December, Brands Bay. 15th January, Shipstall Point. 25th March, Keyhaven.
Green Sandpiper, *Tringa ochropus*. 20th August, Kingston Common.
Common Sandpiper, *Tringa hypolencos*. 20th November, Radipole. **3,** 4th May, Coward's Marsh. 31st August, Keyhaven.
Spotted Redshank, *Tringa erythropus*. 25th March and 31st August, Keyhaven.
Greenshank, *Tringa nebularia*. 12th December, Brands Bay. 25th March and 31st August, Keyhaven. 30th September, Stanpit.
Knot, *Calidris canutus*. **1,** 31st August, Keyhaven.
Little Stint, *Calidris minuta*. 31st August, Keyhaven. 30th September, Stanpit.
Curlew Sandpiper, *Calidris testacea,* **2,** 31st August, Keyhaven.
Ruff, *Philomachus pugnax*. **1,** 30th September, Stanpit.
Lesser Black-backed Gull, *larus fuscus*. 12th December, Brands Bay. 13th February, Poole Harbour. 24th February, Hengistbury Head. 30th September, Stanpit.
Common Gull, *Larus canus*. 16th October, Hengistbury Head. 13th February, Poole Harbour.
Black Tern, *Chlidonias niger*. **1,** 30th September, Stanpit.
Puffin, *Fraticula arctica*. 22nd April, Winspit.
Stock Dove, *Columba aenas*. 8th June, Cranborne.
Willow Tit, *Parus atricapillus*. 5th March, Parley Common.
Bearded Tit, *Panurus biarmicus*. 20th November, Radipole.
Whinchat, *Saxicola rubetra*. 31st August, Keyhaven. 30th September, Stanpit.
Redstart, *Phoenicurus phoenicurus*. 8th April, Hengistbury Head. 14th September, Ninebarrow Down.
Blackcap, *Sylvia atricapilla*. 11th May, Coward's Marsh. 8th June, Cranborne. 14th September, Ninebarrow Down.
Garden Warbler, *Sylvia borin*. **3,** 8th June, Cranborne. 5th August, Parley Common. 14th September, Ninebarrow Down.
Dartford Warbler, *Sylvia undata*. 16th October, Hengistbury Head. 5th March and **3,** 4th May, Parley Common. **3,** 9th July, Hampton Ridge.

Spotted Flycatcher, *Muscicapa striata*. 9th July, Hampton Ridge, 20th July, Ladycross Lodge. 14th September, Ninebarrow Down.

Siskin, *Carduelis spinus*. 4th November, Sowley Pond. 5, 19th December, Kingston Common.

Redpoll, *Carduelis flammea*. 4th November, Sowley Pond. 5th August, Parley Common.

Corn Bunting, *Emberiza calandra*. 26th May, Waterditch.

Members Days

The year's programme has been a varied one, covering many aspects of the Society's interests. The seemingly untiring Chairmen of Sections have had a busy year, and we are grateful to them for their support and co-operation in giving all members an opportunity to see some of the museums treasurers, normally locked away for safe keeping. Many thanks to those members who brought interesting curios—some with strange and unusual histories, to the October meeting. Brigadier Edwards, Chairman of Council welcomed the Society's New Members during the November meeting.

In February Mr. Robinson talked to us about the long history of playing cards and had on view his extensive collection of cards from all over the world. As we had so many new Members, three of our experts, Miss Rushton, Mrs. Hunt and Mrs. Chomé, undertook to show us round the garden at the June meeting, fortunately before the prolonged drought played so much havoc, though the metasequoia, azeleas and rhododendrons were already showing some reaction.

Mr. R. C. Buckland took us to Paris and Spain for his talk on architecture and Dr. T. M. Bell was again our able Quiz Master for the Natural Science Quiz.

The "Book of the Dead" and hand painted pottery were on display at the lecture on Ancient Egypt by Mr. Bray our Curator. I must in conclusion thank Mr. Lee who helped us out once more at very short notice with his excellent colour slides at the September meeting and to Mr. Mitton and Mr. Crawshaw, our projectionists, for their help and co-operation during the year.

J. C. Earl, Chairman

Library

As a result of the financial success of the Book Sales from October 1975 and onwards, the Committee have now added several important books to most of the Sections represented by the Society. These were displayed in July in the Lecture Hall.

Books borrowed from the Library from September 1st, 1975 to September 1st, 1976 total 192.

E. C. Todd, Hon. Librarian

Museum

Members may be interested to learn that our Fine Building at No. 39 is now controlled by the Architectural and Historical Department of the Environment, with effect from 24th February, 1976. Your Hon. Curator has been elected a Member of the Geological Curators' Group and The Geology and Physiography Section of the Nature Conservancy Council.

On Tuesday, May 25th, 1976, Mrs. B. Taylor, Chairman of Geology and I lead a party of B.N.S.S. Members to London to visit the New Exhibition of Earthquakes, Volcanic Action, etc. and the latest results of the new conception of Moving Continents, etc. This very fine Exhibition was and still is, being held at the Geological Museum in Exhibition Road, London. As Curator, I went many times to prepare the way to make this visit a success and was always received very courteously by the Education Officer Mr. R. H. Roberts, B.A. and Fellow of the Geological Society, who gave us a most interesting Colour Film of Volcanoes, etc. in the fine Lecture Hall of the Museum. My tape recorded his talk and we thanked him very much for his willing co-operation. After the Lecture, Mrs. Taylor and I conducted members around the Exhibition of Moving Models and Colour Films of Volcanoes in action. The very beginning of our Planet was illustrated in a ten minute colour film and the whole visit to this latest presentation of modern Geology occupied an hour's duration leaving plenty of time for Tea in the Natural Science Museum. Many Members shared the experience of a Simulated Earthquake as occurred in Alaska some time ago. A School Teacher in the Eathquake area taped the appropriate sound effects, and this was relayed, as members watched a film. The quaking took place upon a specially constructed floor, large enough to accommodate 15 persons who were warned to hold tight, etc. The entrance to the Exhibition was through a large Cave moulded upon the actual rock face replica in the North West Highlands of Scotland. All Members voted this visit to London an outstanding success which could be repeated perhaps one day.

A visit was received from members of the Bournemouth Women's Guild.

Our Open Day on September 17th represented a highly successful occasion and I, wish to express sincere thanks to Squadron Leader Banks and to all Members who contributed to the general effort of recruitment of new members for our Worthy Society. *W. A. Bray, Hon. Curator B.N.S.S. Museum*

Lantern Slide Collection

During the year Miss Whitaker has presented a collection of several hundred slides, the work of her father. These are mainly architectural studies of very high quality and form a valuable addition to our collection and we thank her for the gift.

Slides have been utilised on several occasions by lecturers and the undersigned will be be glad to help members when preparing future activities.

J. C. Mitton, Hon. Projectionist

Tea Committee

To all those who so generously gave plates for sandwiches in answer to my appeal, we of the Tea Committee, say a big Thank You. Our grateful thanks are also due to the two gentlemen who wish to remain anonymous, for the donation of £1 each to our tea account.

The highlight of the Christmas season was the wonderful party put on for the Tea Committee by Mr. and Mrs. Lee. What a treat it was to be waited on, we all felt like Queens. To both of them, and to the cheery band of helpers who took over the chores in the kitchen a very warm Thank You.

Our year ended on a happy note when a party was held at the Chairman's home, to celebrate the marriage of Mrs. Coote and Mr. Crawshaw.

Once again I offer my sincere thanks to all my committee members, and to Mrs. Scott, for the wonderful support they gave me. Despite inflation we look forward with confidence to the coming year.

Mollie K. Parkinson, Chairman

Field Meetings General

Five-day Field Meeting to Oxford, 29th March–2nd April, 1976.

The 8th Field Meeting was held at St. Hugh's College, with a coach tour each day, individual visits to Colleges on two afternoons and a talk each evening on features of the following day's outing by one of the leaders.

The outward journey was via the Berkshire Downs, with a halt on the pre-historic Ridgeway, to visit Wayland's Smithy (a late Stone Age chieftain's tomb), and for a view of Uffington Castle (a magnificent Iron Age earthwork) and the oldest White Horse in England. After lunch and a visit in Wantage, King Alfred's birthplace, and tea at St. Hugh's, a preliminary visit was made to Oxford itself.

The second morning was spent at Stanton Harcourt, where Lord Harcourt gave permission to see the sumptouus tombs in the Harcourt Chapel, the mediaeval kitchen, Pope's Tower, where the poet worked on his translation of the "Iliad" and the beautiful lake and gardens, closed to the public after storm-damage. The whole party also visited Worcester College, to see the splendid Romanesque chapel, designed by William Burgess, of Cardiff Castle fame, to illustrate the "Te Deum" and "Benedicite". Of special interest were the so-called "Mansiones", separate houses, with a single door and staircase, built to accommodate monastic students in the earliest days and a model for all subsequent College rooms.

On the third day we visited the Church and Churchill tombs at Bladon, the Folk Museum in ancient Woodstock (connected with the "Fair Rosamunde") and Blenheim Palace and Gardens. The ladies then had an interesting visit to Early's Blanket Factory (established 1669) at Witney, while the men went to see Burford. Later the whole party visited the ruins of the Abbey and Manor House at Minster Lovell (of the Mistletoe Bough legend), the mediaeval Dovecote and the 15th-century Church, with the remarkable alabaster Lovell tomb.

The fourth morning started with a journey to the picturesque village of Ewelme, noted for cultivation of watercress. Our interest lay in the group of Church, almshouses and school, all built together by Geoffrey Chaucer's grand-daughter, Alice, Duchess of Suffolk in the 15th-century. The Church contains the tomb of Chaucer's son Thomas and his wife, and most notably that of their daughter Alice, in alabaster; this is considered one of the finest in the country. The actual tomb is in three tiers—the recumbent figure of the Duchess, the chest containing her remains, and, most unusual, her skeleton beneath. The Garter on her left fore-arm (one of only 3 in the country, a second being noted at Stanton Harcourt) was used by Queen Victoria to define the position of the Garter for all Ladies of the Order. We then visited the Alms-houses, with cloisters and well, and the school, in continuous use since its 15th-century foundation. We went on to the Roman town of Dorchester, with its 14th-century Abbey, containing the only Jesse Window in the country depicting the Tree in the surrounding stone as well as the glass. We were fortunate to visit this Abbey, subsequently closed owing to theft of its roof lead.

On the return journey, after a visit to one of the finest Norman Churches in England at Iffley, we spent several hours in Abingdon, with lunch at an early 17th-century coaching inn and views of the fine 15th-century Thames bridge, the Old Jail built by Napoleonic prisoners, the remains of the Abbey, the Market Place with its magnificent County Hall, designed by Wren, St. Helen's Church, remarkable and unique for having 4 porches and 5 aisles and a 14th-century roof painting of the Tree of Jesse. Behind this church we visited 3 groups of almshouses, all belonging to Christ's Hospital, and were conducted round the 15th-century Long Alley almshouse. Our final stop was for a sumptuous tea at Ringwood.

Visit to Malmesbury and Berkeley Castle—19th August, 1976.

Berkeley Castle was the principle object of 53 members, but a long stop was made at Malmesbury to see the picturesque old streets and buildings, the elaborate Tudor Market Cross and, above all, the splendid remains of the 12th-century Benedictine Abbey, devastated by the collapse of the tower, taller than Salisbury's, in 1479. After a picnic lunch at Berkeley, we had a conducted tour of the magnificent Castle and visited the Early English church, with its many interesting effigies and elaborately decorated Berkeley mortuary chapel. Of great interest was the nearby Hut, used as a surgery by the local physician, Dr. Edward Jenner, where he performed the first vaccination of a human being in 1796. The return journey was along the Cotswold Edge and via ancient towns and villages, including Bradford-on-Avon.

W. C. Thomas, Mrs. G. M. Thomas, Leaders

Visiting Panel

During this last year, about 40 members have been visited, including Mr. & Mrs. D. E. Withers, Miss F. Penrose, Mrs. M. Clarke, Miss K. E. Andrews, Mr. & Mrs. Chambers, and Mr. W. F. Perry. All those visited wished to be remembered to their fellow members. Volunteers to help with visits would be very welcome.

E. Buckland, Chairman

Bournemouth Natural Science Society

List of Presidents (1903-1977)

1903—04	J. E. Beale (Mayor of Bournemouth)
1904—06	G. E. J. Crallan, M.A., M.B., M.R.C.S.
1906—07	H. J. Waddington, F.L.S.
1907—09	A. Ransome, M.A., M.D., F.R.C.P., F.R.S.
1909—10	A. Smith Woodward, D.SC., F.R.S., F.L.S., F.G.S.
1910—11	Dukinfield H. Scott, M.A., LL.D., F.R.S., F.L.S., F.G.S.
1911—13	Sir E. Ray Lankester, K.C.B., M.A., LL.D., F.R.S., F.L.S.
1913—16	Sir Daniel Morris, K.C.M.G., J.P., M.A., D.SC., D.C.L., F.L.S.
1916—17	The Rt. Hon. the Earl of Malmesbury, D.L., J.P.
1917—18	Sir Jethro J. H. Teale, M.A., D.SC., LL.D., F.R.S.
1918—20	Field Marshal Lord Grenfell of Kilvey, G.C.B., G.C.M.G., LL.D., F.S.A
1920—21	Lt. Col. Sir David Prain, C.M.G., C.I.E., F.R.S.
1921—23	F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.
1923—24	Sir F. W. Keeble, K.B.E., D.SC., F.R.S.
1924—26	Hubert Painter, B.SC., F.C.S.
1926—28	Heywood Sumner, F.S.A.
1928—29	Claude Lyon
1929—30	Professor F. O. Bower, D.SC., F.R.S.
1930—31	Henry Bury, M.A., F.L.S., F.G.S.
1931—32	Dukinfield H. Scott, M.A., LL.D., F.R.S., F.L.S., F.G.S.
1932—33	J. P. Williams-Freeman, M.D.
1933—34	Rev. F. C. R. Jourdain, M.A., F.Z.S., M.B.O.U.
1934—35	Sir F. W. Dyson, K.B.E., M.A., D.SC., LL.D., F.R.S., F.R.A.S.
1935—36	Henry Bury, M.A., F.L.S., F.G.S.
1936—37	Sir Harold Carpenter, M.A., D.SC., F.R.S.
1937—38	Professor John Cameron, M.D., D.SC., F.R.S.E.
1938—39	Professor G. D. Hale Carpenter, M.B.E., D.M., F.L.S., F.Z.S., F.R.E.S
1939—40	W. G. Aitchison Robertson, M.D., D.SC., F.R.C.P., F.R.S.E.
1940—41	Rev. Professor M. C. Potter, M.A., D.SC., F.L.S.
1941—42	Inst.-Capt. M. A. Ainslie, R.N., M.A., F.R.A.S.
1942—43	William C. Simmons, B.SC., A.R.C.S., F.G.S.
1943—44	Professor S. Mangham, M.A.
1944—45	A. S. Hemmy, B.A., M.SC.
1945—46	J. F. N. Green, B.A., F.G.S.
1946—47	Lt.-Col. C. D. Drew, D.S.O., F.S.A.
1947—48	W. J. Woodhouse, A.C.P.
1948—49	Edward Hindle, M.A., D.SC., F.R.S., F.Z.S.
1949—50	Mrs. W. Boyd Watt, F.Z.S., M.B.O.U.
1950—51	Professor Sir R. A. Peters, M.C., M.A., M.D., F.R.S
1951—52	Ernest Chambers, F.L.S.
1952—53	F. Williamson, F.R.HIST.S.
1953—54	H. E. Clarke, M.A., B.SC., F.R.I.C.
1954—55	W. J. Read, M.SC., F.R.I.C.
1955—56	W. S. Brown, B.SC.
1956—57	A. W. Legat, M.INST.C.E., M.I.S.E.
1957—58	D. A. Wray, PH.D., M.SC., F.G.S.
1958—59	Miss M. A. M. Penrose, B.SC.
1959—60	Miss D. M. Lowther, B.SC.
1960—61	James Fisher, M.A., F.L.S., F.Z.S.
1961—62	W. P. Winter, B.SC.
1962—63	F. H. Perring, PH.D., M.A.
1963—64	Miss F. M. Exton, B.A.
1964—65	Dame Kathleen Lonsdale, D.B.E., D.SC., F.R.S.
1965—66	A. J. Butcher, F.R.I.B.A.
1966—67	Mrs. A. K. Hunt, B.SC.
1967—68	Professor F. Hodson, PH.D., B.SC., F.G.S.
1968—69	T. Marshall Bell, B.A., M.B., B.CH.
1969—70	Ernest Chambers, F.L.S.
1970—71	Graham Teasdill, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.
1971—72	Miss Ursula M. Ogle
1972—73	Sqd.-Ldr. J. L. C. Banks
1973—74	Miss K. Milner Bennetts, F.Z.S.
1974—75	Donn Small, M.SC.
1975—76	S. C. S. Brown, F.D.S., R.C.S., L.D.S.
1976—77	F. Oldham, J.P., M.A., B.SC., F.INST.P.

PUBLICATIONS RECEIVED

The following publications were received in the Library during the year. Some of them were gifts from members who subscribe personally to the particular Society. The Library Committee are glad to record their appreciation of such gifts.

1. Publications issued by a Society or Institution

Birmingham Natural History & Philosophical Society—*Proceedings.*
Botanical Society of the British Isles—(1) *Watsonia,* (2) *Proceedings.*
British Association for the Advancement of Science—
British Trust for Ornithology—(1) *News Bulletin,* (2) *Bird Study.*
California Academy of Sciences—*Proceedings.*
Cambridge Antiquarian Society—*Proceedings.*
Dorset Natural History & Archæological Society—*Proceedings.*
Hampshire Field Club & Archæological Society—*Proceedings.*
Hampshire and Isle of Wight Naturalists' Trust Ltd.—*Proceedings.*
Hertford Natural History Society—*Transactions.*
Linnean Society of London (1) Botany, (2) Biology—*Proceedings*
Men of the Trees—*"Trees".*
National Trust—*Newsletter.*
Royal Commonwealth Society
Royal Horticultural Society—*"Gardens".*
Royal Society for the Protection of Birds—*"Birds".*
Senckenbergische Naturforschende Gesellschaft—*"Natur & Museum".*
Smithsonian Institution, U.S.A.—*Annual Report*
Société Jersaise—*Annual Bulletin.*
The British Entomological & Natural History Society—*Proceedings & Transactions.*
Torquay Natural History Society—*Transactions & Proceedings.*
Tromso Museum, Norway—(1) *"Astarte"* (2) *Acta Borealia*
Upsala University, Sweden—*Acta Phytogeographica Suecica.*
U.S. Information Service—*Science Horizons.*
Zoological Society of London—
Christchurch Harbour Ornithological Group—*Birds of Christchurch Harbour report.*

2. Periodicals received

"Nature", The Dorset Magazine, The New Scientist, Chemistry in Britain, "National Geographic", "Wildlife", Endeavour, Journals of the Geological Society, Newsletters and Year Books.

The Bourne Press, 3/11 Spring Road, Bournemouth